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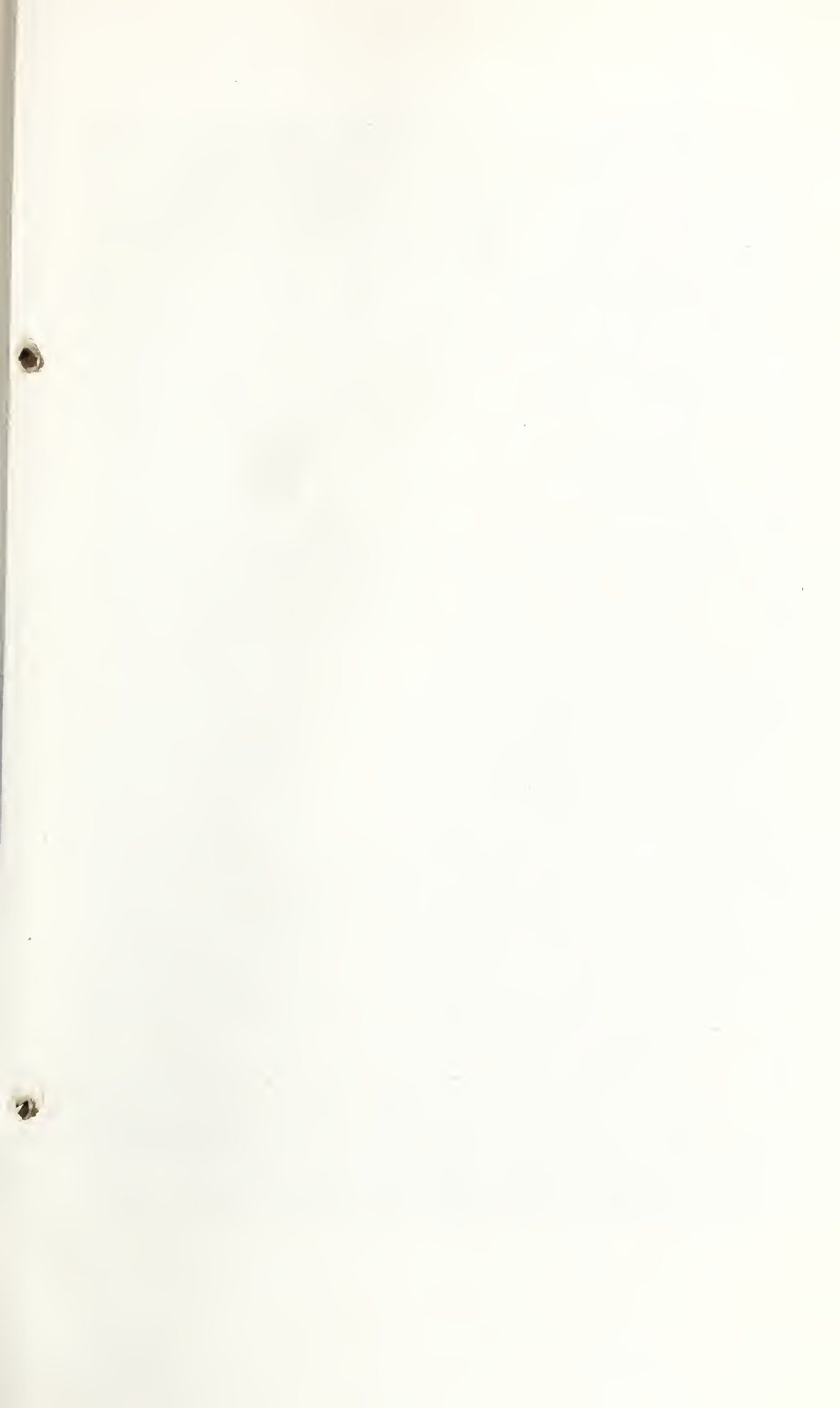
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SUPERINTENDENT'S DWELLING — Sutton, Mass.





STATE HATCHERY — Sutton, Mass.

Mass: 537
REPORT OF THE COMMISSIONERS

ON

INLAND FISHERIES AND GAME

FOR THE

YEAR ENDING DECEMBER 31, 1896.

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Commonwealth of Massachusetts.

To His Excellency the Governor and Honorable Council.

The Commissioners on Inland Fisheries and Game respectfully present their thirty-first annual report.

FISHWAYS.

The fishway on the Nemasket River, at Middleborough, over what is known as Sherman's dam, was out of repair, and, as the town of Middleborough had bought 75 horse-power of this privilege and was also directly interested in the fisheries of the river, deriving an income of about \$500 per annum therefrom, it was felt that the town might be willing to put the fishway in order, and accordingly we had an interview with the selectmen, who agreed to see that it was done.

When notice and plans were sent them, they, by advice of their counsel, claimed that they were not obliged to do the work, and refused to take any responsibility in regard to it. As the property is more or less encumbered, it was necessary to ascertain who were the legal owners, and in June the case was put in the hands of the Attorney-General. After much delay, the responsible parties were found and notice served on them. As the water was very high, an extension of time was asked, with the agreement that it should be done before the first of January. We feel confident that the agreement will be kept.

LAWRENCE FISHWAY.

The freshet of last spring so damaged this fishway as to render it useless, and it was not until near the close of the legislative session that the water receded sufficiently to show the full extent of the injury. As soon as possible an estimate was made as to the amount of money required to repair it, and a resolve put into the Legislature, but it failed to pass.

By agreement, the Essex County pays one-half the expense of the building and maintenance of this fishway, and we recommend that the State appropriate a sum sufficient to pay the other half.

CARP (*Cyprinus Carpio*).

About 1,200 carp, ranging in size from fingerlings to two pounds in weight, have been distributed during the past year.

Owing to the small demand for these fish, the breeding ponds at Tewksbury have been discontinued, and applicants will hereafter be supplied from a flowed meadow in the Middlesex Fells, which was stocked a few years ago, and now contains a large number of carp from three inches in length to fifteen pounds in weight. The large fish can be caught with hook and line, but will require constant care in transportation.

The late Professor Baird, United States commissioner of fisheries, before introducing the carp into this country, made a careful investigation of its habits and value as food. He found that in Austria, where they were domesticated as early as 1367, carp culture is a large and profitable industry; and in one establishment in Bohemia, owned by the princes of Schwartzenberg, no less than 20,000 acres are covered by artificial ponds, the proceeds of which amount to about 500,000 pounds of carp annually. It is one of the leading fish in their markets, commanding a good price, the quality, as food, being considered not inferior to most salt-water fish.

Carp are found in many of our lakes, ponds and rivers, where, except in a few cases, they have no commercial value. This distribution was never intended by Professor Baird, but many applicants, disregarding his instructions, dumped them into streams, ponds and mudholes, where it suited their convenience, with the result that many persons have become prejudiced against them, claiming that they are worthless for the table; and many fishermen, who have destroyed their industry by overfishing, have laid the blame on the carp as the destroyers of the spawn of other fish.

Carp are taken in the great lakes and sold in the surrounding cities, where they are found on bills of fare at hotels and restaurants.

They are very prolific, but entirely defenceless, and, when placed in waters containing carnivorous fish, do not as a rule

increase to any considerable extent. It is only in artificially constructed ponds, where they can be protected from their enemies, that they become valuable. As they are vegetable feeders, flowed meadows and ponds with grassy bottoms are best adapted to them. If taken from these ponds (the greater part of which should be shallow) in summer, when the water is warm, the flesh is soft, and has a muddy flavor; but this is easily changed by keeping them in clear cold water for a few days before using them.

The carp is, of all fish, the most easily cultivated, and in properly arranged ponds, where they are under control, can be made more profitable than any other fish, the outlay being small, and the price, in Boston market, from eighteen to twenty cents per pound.

TROUT.

Between 500,000 and 600,000 trout fry were hatched last spring. A list of the distribution will be found in the Appendix.

The hatchery at Sutton, as will be seen by the following report, is in good working order: —

SUTTON, Dec. 10, 1896.

Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I submit the following report in relation to the condition of this hatchery at the present time, and a statement of the work that has been done in connection with the same since I took charge of it one year ago.

To increase the conveniences for raising young trout, a runway, 130 feet long, 8 feet wide and 3 feet deep, has been constructed in the stream south of the hatchery. It is made of plank, on a stone and gravel foundation, and has five apartments through which the water flows at a depth of from 10 to 18 inches. It has proved well adapted to the purpose for which it was constructed. A six-inch driven well has been sunk to a depth of 28 feet, near the head of the pond, and now furnishes a sufficient supply of pure water to run the hatchery, making a saving of much labor in the care of the eggs.

At the present time there are 600,000 trout eggs in the hatchery, in excellent condition, and there is a prospect of adding several thousand more before the season closes.

There have been added to the breeding fish this year, by purchase, 400 females and 300 males, now eighteen months old, and I have caught from streams near by and put into the pond 220 females and 125 males, making the total number of fish on hand 2,690.

There has been a considerable loss of large fish by disease, — a species of fungus that attacked the throat. During the summer a forest fire consumed two hundred cords of wood on the north side of the pond, and the flow of wood ashes into the pond by rain storms was such as to greatly change the color of the water, and may have caused the loss of the fish.

The hatchery is now supplied with all conveniences for its successful operation.

Respectfully,

WM. E. PILLSBURY,

In Charge of the State Fish Hatchery, Sutton, Mass.

HATCHERY AT EAST HADLEY.

A Resolve was passed by the last Legislature, appropriating \$3,000 for a hatchery to accommodate the western part of the State. The commissioners, after carefully considering the several places recommended, unanimously decided that the location at East Hadley was not only the best adapted to the work but also would best accommodate that whole section.

Although it was late when a decision was reached, steps were at once taken to complete the work, so as to be able to put in a considerable number of eggs by the middle of January.

Under the direction of the commission, Deputy John W. Delano was put in charge of the construction, and on December 14 made the following report : —

Commissioners on Inland Fisheries and Game.

GENTLEMEN : — The work of building the new hatchery at East Hadley has been pushed forward as rapidly as possible, and at this time is about finished, except putting in and piping the hatching troughs, which we hope will be completed and in running order in about ten days.

The site secured takes in something over 7 acres, including a pond of 1 acre, of nice spring water, with a fall of 10 feet to the stream below the dam, two never-failing springs of as pure, clear water as can be found in the State, and the control of 12 feet on each side of the stream and below the pond for a distance of at least 1,000 feet.

The hatchery building, 41 by 28 feet, with 8-foot walls, is built of brick, with an additional 8 feet of woodwork in front, giving the main room 26 by 39 feet and two rooms in front 8 by 11 feet. The building being built on the slope, the ground is graded 3 feet high to the window sills, and without a doubt the main room can be kept sufficiently warm without a fire.

An inch and a half pipe, 300 feet long, connects the building and the middle spring, giving a never-failing supply of water, with a fall of 30 feet.

The ice house, 9 by 13 feet, located near the pond, will be finished during the week.

As the season was so far advanced, I thought it advisable not to do any more work than was necessary to the road from the highway to the hatchery building. I had the bridge new topped, the low places in the dam filled up and substantial posts and railings put on both sides of the dam, giving a safe and fairly good road from the highway to the building.

Respectfully submitted,

JOHN W. DELANO.

HATCHERY AT WINCHESTER.

In last year's report the following statement was made in regard to this hatchery : —

The State hatchery at Winchester needs rebuilding ; it cannot be safely run another season. As a centre of distribution for the southern and eastern part of the State, it is desirable that its location should not be materially changed.

The principal part of this hatchery was built by the present chairman of the Board, at his own expense (for which no reimbursement has ever been made), before he was on the commission, and, with the exception of a small addition and occasional repairs, has never cost the State anything except the running expenses, which have been slight. From this hatchery an average of about 600,000 fish have been distributed annually over the State, — over 15,000,000 in all.

As the house must either be rebuilt or abandoned, we recommend that it be rebuilt a few rods below its present location, on land belonging to the State and under the charge of the Metropolitan Park Commission, and that a sufficient sum of money be appropriated to build a house worthy of the location.

No action was taken on this recommendation. Unless provision is made to rebuild this hatchery the coming season, the people of the eastern and southern sections of the State will be deprived of the privilege they have enjoyed for the last twenty-five years.

LOBSTERS.

An effort was made in the last Legislature, originating, mainly, from fishermen who were either persistent in violating

the law or openly opposed to all laws for the protection of fish and game, to reduce the legal length of the lobster from ten and one-half inches to nine inches. A singular fact in connection with this was, that the Southern Fish and Game Association, hitherto supposed to be in favor of protecting our fisheries, lent whatever influence they had in favor of this suicidal act.

After a heated discussion, it passed the Senate by one vote, and would have become a law but for the timely intervention of the governor, who, in the interest of the Commonwealth as well as of the fishermen, vetoed the bill.

We have hitherto called attention to the decline of this important industry, and the spasmodic efforts to change the law are direct evidence of the fact. Had the catch of large lobsters not fallen off, the fishermen would not have asked to have the legal length changed. The lobsters caught in this State, with one or two local exceptions, are hardly above the legal length, which is, on the north shore and largely on the south, below the spawning size; and the natural consequence is that the number of egg-bearing lobsters has fallen off over fifty per cent. in the last six years, and the catch per pot about forty per cent. Unless some change is made for the better protection of this valuable fish, this decline will continue.

There has been no improvement on the part of those who have for years violated the law. The records of our deputies show that there have been over \$6,000 fines awarded by the courts, mainly for violations of the lobster law.

This unfortunate condition of things can be to a great degree rectified by compelling the fishermen to take out a license, under penalty of forfeiture for non-compliance, and to place the slats on the lobster pots sufficiently wide apart to allow the small lobsters to escape, on the same principle that the mesh of seines is regulated.

WEIRS, POUNDS AND NETS.

The returns show an increase in the catch of mackerel over last season, but the most of them were taken in June and July. During these months there appeared to be large quantities of mackerel on the coast, of superior quality, such as have not been seen for years, and were of great benefit to the fish weirs and net fishermen; also the mackerel fleet made good catches

off the coast and at George's banks, and it appeared during these months that they would have an old-time catch, but after the first of August they disappeared, and were not seen by any of the fleet that cruised from Cape Cod to the Nova Scotia coast. Later, some mackerel were found off Block Island and the Vineyard Islands, and immense quantities of sea herring were in Barnstable Bay and the harbor of Provincetown, which was a great help to the boat fishermen of that locality; but, like the past few years, it has not been a profitable season for those engaged in the shore fisheries.

STATE STEAMER.

After painting and completing the necessary repairs, the steamer was put in commission May 16, and was located in Buzzard's Bay and adjoining waters during the entire season. Menhaden have been plentiful in the bay, and schooled freely all the season. No violation of the laws by fishing steamers have been reported.

Captain Proctor reports that he has investigated 70 cases and made 64 arrests, with fines imposed to the amount of \$3,614.50, and has seized 11,372 lobsters.

The menhaden left the bay about the first of October, and the steamer was laid up at dock in New Bedford October 8. She will require considerable repairs to hull, machinery and boiler to do the work required for another season.

MONGOLIAN PHEASANTS.

The propagation and distribution of Mongolian pheasants has been successfully carried on during the past season at the State aviaries. Something over 200 chicks, which had been allowed their freedom in the large enclosure, were trapped in October and put in a covered corral 28 by 60 feet in area. But this proved too small for so many birds, and there was a small loss in consequence of the stronger birds picking upon the weaker ones. This will be obviated next year by sending the birds out as soon as they are trapped, not waiting to determine the sex, which takes from four to six months.

A few birds were distributed last year to responsible parties, with the understanding that they were to breed and turn them out in their respective localities. Only three were successful

in raising birds. We give below their statements, showing their experience and indicating the feeling of all, for even those who failed are not discouraged, but are confident that past experience will lead to success in the future.

In the spring of 1895 Dr. White of Sandwich was furnished with a setting of eggs, from which he raised one bird, a female, and last spring we sent him a mate. To our inquiries he sent the following reply: —

My pheasants are doing nicely. I have twenty good, healthy birds, two of which are cocks, with eighteen hens. I found that the utmost care has to be taken of them until they are about a month old, then they are hardy, and seem to withstand anykind of climate or weather.

My one hen last season laid eighty-two eggs, but, as there was but one cock, over half of the eggs were not fertile. I am in hopes to form a club here, and go to raising them more extensively. They are a splendid game bird, and the State ought to appropriate more money for the purpose of increasing the supply, and get them more generally introduced in the State.

Sincerely yours,

G. E. WHITE, M. D.

SANDWICH, MASS.

The doctor is at fault in supposing that the infertility of the eggs was due to the fact that he had but one male. At the State aviary it has been our experience that the eggs are generally fertile, and the rule is one cock and three hens in each coop. If two males are put together during breeding time, it is only a question of time when but one is left. The lack of fertility was probably due to overfeeding, or not giving enough green food in the beginning of the breeding season, or perhaps because the birds were young.

MR. E. A. BRACKETT.

DEAR SIR: — We received a trio of Mongolian pheasants from you last fall. In the spring the cock wilfully and intentionally committed assault and battery on one of the hens, and we took her out of the coop and asked you for another cock. However, before he arrived the hen had passed in her checks, and by your advice we liberated the cock. He has been seen, at times, all summer.

Our hen laid thirty-two eggs, from which were hatched twelve chicks. The first three were hatched when the weather was so cool that it was impossible to get maggots for food, and we lost two. From the next

sixteen eggs we had nine chicks, seven of which escaped when about a quarter grown. The three remaining were fine, healthy cocks (don't mate up well, however) until Thanksgiving Day, when one died. Can you let us have some hens later? We now have the old pair, the pair received this fall from Senator Bill, and two young cocks, — six good, healthy birds. We intend to breed them another season and hope to raise the young and select several pairs for other pens. The birds that are loose have been seen around the town, and it looks as if they can live nicely in this climate.

Yours respectfully,

FORREST W. W. FORBES.

WESTBOROUGH, MASS., December, 1896.

In the spring of 1895 Mr. F. G. Crane of Dalton put into the woods and covers of that town twelve pheasants, which were without doubt of the Mongolian breed. Most of them lived through the winter, and a number of broods were hatched and raised during the summer. We thus have good proof that the pheasant will live and thrive in this part of the State, which has the most trying climate.

The sentiment is very strong in this locality, that it is wise for the State to encourage and aid in the propagation of these birds.

BENJ. SMITH, *Deputy*.

PITTSFIELD.

Report for the Fitchburg Gun and Rifle Club.

MR. E. A. BRACKETT.

DEAR SIR: — Last spring the members of the Fitchburg Gun and Rifle Club desired me to take charge of rearing Mongolian pheasants from eggs to be furnished by you. Although not a sportsman, they succeeded in interesting me in this matter, and I have done my best to work for the interest of the club and State. I began by visiting your yards at Winchester and listening carefully to your directions for hatching and rearing the young birds, and brought home with me twenty-six eggs, which were given to two buff bantam hens, and twenty-two chicks were hatched. I had maggots ready to feed to them, but lost many the first ten days. Three of them, one cock and two hens, grew to maturity, and beautiful specimens they are. Of the second lot of twenty-six eggs, set late in June, twenty were hatched. These were with two bantam hens, ten chicks each. I tried to profit by my first experience, but in twelve days had but ten. The hens were fed in separate pens from the chicks, but one was so loyal that she would carry over the partition bits of food, which sickened the little pheasants before I knew what she was up to. I carefully examined each one that died, and found that any particle of grain

would lodge in the little gizzard so hard there would not be room enough for the sharp grit to grind it. I am sure that care must be observed that the little birds get only maggots, or such food, for at least ten days. Nine of these chicks survived. The rearing yards were in an apple orchard after the grass was cut, and the birds were allowed to roam at will after the hens left them, as we understood that you favored that plan, and part of them are still at large. Those that have been caught are much finer birds than they would have been had they been shut in when young.

The club have provided suitable breeding pens for twelve or fifteen birds, and are anxious to do all in their power to help the State in stocking the woods with these beautiful birds.

Respectfully yours,

H. R. FOSTER.

ASHBY, MASS., Dec. 9, 1896.

NORTH EASTON, MASS., Dec. 2, 1896.

MR. E. A. BRACKETT.

DEAR SIR:—Yours of the 30th received. I have now about forty pheasants, but unfortunately a large proportion of them are cocks. Since I adopted your method of feeding the young birds I have not lost any from sickness. I lost a good many the first part of the hatching season, on account of not having the proper hens. I was unable to get Pekin bantams, and the hens I had would pick the young birds as soon as they were hatched, and in that way I lost thirty, besides nearly as many from being trampled on.

The last part of the time I took the young birds away from the hens as soon as hatched, and put them into a brooder, and from that time hardly lost a bird. I feel very much encouraged, and am sure that, if I could have followed your methods as published in your 1895 report to the letter, I should have had a great many more birds, but I could not get any Pekin bantams when I needed them. Last year, out of about the same number of eggs hatched out as this year, I only raised two birds; so we see that the feeding was responsible, in a great measure, for my success this year.

The birds I turned out a year ago last spring have done remarkably well. I have seen three broods of young birds, and have heard of others. They are the English ring-neck.

I hope to raise a great many more birds next spring than I did this year, and therefore shall not turn out those I raised this year, but keep them for layers, and hope next year to turn out a great many. I hope you will be able to let me have a few hens, as I have not enough to do as I should like to. I shall try to go to Winchester very soon and talk the matter over.

Yours truly,

HOBART AMES.

Mr. Ames has a large plant, fully equipped for raising pheasants for stocking his vicinity. Last spring he bought two pairs of Mongolian pheasants and received two settings of eggs from the State, and is pursuing the work with a perseverance and energy which cannot fail to give excellent results. We had the pleasure of visiting his aviaries and looking over the arrangements and plans which he has so intelligently laid out.

The perversity of the large hens in killing the chickens was not an entire misfortune, as it induced him to use the brooder as soon as they were hatched, thereby saving his birds. From his and our own experience with the brooder, the indications are that more birds can be raised in that way than by trusting them to the care of even the best of hens. Where a large number of birds are to be raised, if the incubator and brooder can be successfully substituted for hens, nine-tenths of the expense and labor will be saved.

The price usually asked for brooders is altogether too large, as they can be built cheaper. A boiler, three feet six inches long and one foot wide, made of galvanized iron, can be made for five dollars, and of copper for six dollars, and any one who can use a saw and plane can make the woodwork. The selling price of most of them is twenty-five dollars. The best brooder boiler we have seen for out-door work is one invented and made by Mr. Harlow Foster, Ashby, Mass., who has been engaged by the Fitchburg club to raise pheasants for them.

Twenty-three applications for pheasants have been received this year from parties who have built aviaries, and are prepared to either breed them or take the young birds, care for them through the winter and liberate them in the spring. But, owing to the fact that the most of those who had birds last year were unsuccessful in breeding them, it is thought best to increase the State plant, so as to be able to send out a larger number of young birds next fall. In order to carry out this plan, ten new coops have been built, which will necessitate the retention of a large number of breeders. This, with the fact that a large proportion of the young birds are males, precludes the possibility of filling all of the applications this year.

As the only way now known of raising young Mongolian pheasants is by feeding them on the larvæ of the fly, the successful raising of this food is a matter requiring quite as much

care, attention and study as any other department of pheasantry. The chicks must have soft food until they are at least three weeks old, as their digestive system is too weak to make use of anything else. In ninety-nine cases out of a hundred, when the young birds sicken and die, an examination of the gizzard will show that this organ is crowded with food which it is too weak to take care of.

Flies do not lay their eggs on decayed meat. It is a slightly tainted condition, which lasts from twenty-four to thirty-six hours, according to the weather, that they make use of. They hatch in about twenty-four hours, and feed on the decaying meat. This is the natural order, and is generally supposed to be necessary to their growth. When a large quantity of meat is used it becomes very offensive, and necessitates the removal of the house for the production of the maggots to some out-of-the-way place. To obviate this, the following arrangement has been adopted at the State aviary. The plucks are received fresh, and put into the refrigerator. Only the lights are used for the flies to blow. As the eggs are usually deposited in clusters, they are cut out with a sharp knife (with a small piece of the lights), and these pieces are placed in the hoppers about half full of moist wheat bran, as described in last year's report. In a short time they work their way down into the drawers below, which have the moist bran about an inch deep over the bottom, overlaid with thin slices of meat (cut from the plucks). They are fed this way night and morning, until they are full grown. Before the meat has time to decay, they have eaten it all. So far from putrid meat being necessary, it is found that they thrive better on fresh meat, are larger and better for the young birds.

In our last report it was stated that the only chance of failure in the introduction of these birds was the possibility that they might not find sufficient food to tide them over the deep snows, but we have now abundant evidence that they have not perished either from cold or lack of food. Of those that were released or escaped from us last year, two are known to have been killed by foxes and several shot by reckless hunters, against one of whom a warrant is out for his arrest. During the summer nests were found and young broods seen in Winchester and vicinity. One hen, with a brood of half-grown

chicks, was seen just outside of the aviary, and males were frequently seen in the adjoining grounds.

No one can mistake a cock for a hen, and, as they are polygamous, it is to be hoped that, should they become abundant, the time will never come when the law will allow the killing of the female.

Our experience and observations confirm the statement from Oregon that they are a valuable acquisition in the preservation of our crops.

GAME.

Reports from our deputies and other reliable sources show a still further decrease in our game birds. Especially is this true in the eastern and middle sections of the State. This depletion is due to overshooting and that most destructive of all weapons, the snare. In some sections snares have been set by the thousands, completely clearing out the ruffed grouse, and, if this nefarious work is not stopped, this finest of game birds will be entirely destroyed. It seems useless for the State to expend money for the protection of game unless this work can be suppressed. All snaring should be prohibited, under severe penalty of fine or imprisonment or both, at the discretion of the court. All sportsmen and all persons who wish to see our game protected should unite in the effort to obtain a law to prevent this wholesale destruction. As the law now stands, it is almost impossible to convict any one of snaring.

The time in which game can be killed should be shortened, and the open season for all game be the same. Unless some decided action is taken, there will be in the near future no game in our woods and fields.

As to song and insectivorous birds, the laws should be more vigorously enforced. Now, any boy who can raise \$1.50 to buy an old Springfield musket, considers himself privileged to take any wild thing he sees for a target. This, together with the fashion of decorating ladies' hats with skins and wings of birds, has led to the depletion of insectivorous birds to such a degree that scarcely a crop of any kind can be raised without spraying with poison to kill the insects which were formerly kept in check by the birds. The penalty for this destruction of the balance of nature is everywhere apparent, and the horti-

culturist and farmer are heavily taxed for want of foresight in protecting their own interests.

If the destruction of these birds cannot be otherwise restrained, let the law for their protection extend to "the possession of their skins or any part thereof," except for scientific purposes.

In some States it is the duty of every teacher to instruct the children in the importance of preserving the birds. Let us hope that something of the kind may be adopted by our Board of Education.

There are a number of deputies, who are appointed at the request of the selectmen of the towns where they reside, or on the petition of fish and game associations. A majority of these men are serving without pay, and cannot afford to act beyond their immediate neighborhoods. Following the example of other States, we recommend that there should be a paid deputy in each county, who shall give attention to any violation of the fish and game laws.

We recommend the rebuilding of the Winchester hatchery; that the Lawrence fishway be repaired; that the open season for all game be uniform, and the time be limited to two months; that, for a term of five years, the sale of game killed in this State be prohibited; and that there should be additional laws for the protection of our lobsters.

Deer are coming into the State in considerable numbers, and, as the present law allows them to be killed during the month of November, except on the Cape, we recommend that it be changed so as to protect them throughout the State for a term of years.

E. A. BRACKETT,

I. C. YOUNG,

E. D. BUFFINGTON,

Commissioners on Inland Fisheries and Game.

APPENDIX.



[A.]

LIST OF FISH COMMISSIONERS.

THE UNITED STATES.

Commissioner, John J. Brice, Washington, D. C.

Irving H. Dunlap, Chief Clerk.

W. de C. Ravenal, Assistant in charge of Division of Fish Culture.

Richard Rathbun, Assistant in charge of Division of Scientific Inquiry.

Hugh M. Smith, Assistant in charge of Division of Fisheries.

ALABAMA.

Col. D. R. Hundley, Madison.

Chas. S. G. Doster, Prattville.

ARKANSAS.

H. H. Rottaken, Little Rock.

W. B. Worthen, Little Rock.

CALIFORNIA.

H. F. Emeric, San Francisco.

Alex. T. Vogelsang, San Francisco.

J. M. Morrison, Sacramento.

Address, California Fish Commission, 78 Flood Building, San Francisco, Cal.

COLORADO.

Gordon Land, Denver.

CONNECTICUT.

Hubert Williams, President, Salisbury (Lakeville P.O.)

Abbott C. Collins, Secretary, Hartford.

James A. Bill, Treasurer, Lyme (Bill Hill P.O.)

DELAWARE.

A. B. Short, Milford.

Dr. E. B. Shortlidge, Supt. of Hatcheries, Wilmington.

GEORGIA.

R. T. Nesbitt, Commissioner of Agriculture, Atlanta.

Capt. J. D. Edmondson, Supt. of Fisheries, La Grange.

ILLINOIS.

Richard Roe,	East St. Louis.
Henry Schmidt,	Elgin.
S. P. Bartlett, Superintendent,	Quincy.

INDIANA.

P. H. Kirsch,	Columbia City.
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IOWA.

Geo. E. Delevan,	Estherville.
Ole Bjorenson, Superintendent.	

KANSAS.

O. E. Sadler,	El Dorado.
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MAINE.

L. T. Carleton,	Augusta.
Henry O. Stanley,	Dixfield.
Charles E. Oak,	Caribou.
O. B. Whitten, Sea and Shore Fisheries,	Portland.

MARYLAND.

James C. Tawes, East Shore,	Crisfield.
John E. Gnagey, West Shore,	Accident.

MASSACHUSETTS.

E. A. Brackett,	Winchester.
I. C. Young,	Wellfleet.
E. D. Buffington,	Worcester.

MICHIGAN.

Herschel Whittaker, President,	Detroit.
H. W. Davis,	Grand Rapids.
F. B. Dickerson,	Detroit.
A. Ives, Jr.,	Detroit.
Geo. D. Mussey, Secretary,	Detroit.
Seymour Bower, Superintendent,	Detroit.
Office, 78 Moffett Building, Detroit.	

MINNESOTA.

W. S. Timberlake,	St. Paul.
Wm. Bird,	Fairmount.
A. F. Ferris, Treasurer,	Brainerd.
F. von Baumbach, Secretary,	Alexandria.
S. S. Watkins, Superintendent,	St. Paul.
S. F. Fullerton, Executive Agent,	Duluth.

MISSOURI.

John T. Crisp, Chairman,	.	.	.	.	Independence.
James L. Griswold,	.	.	.	.	St. Louis.
E. A. Donnelan,	.	.	.	.	St. Joseph.
N. B. Crisp, Secretary,	.	.	.	.	Independence.

NEBRASKA.

J. S. Kilpatrick,	.	.	.	.	Lincoln.
Wm. L. May,	.	.	.	.	Omaha.
Rob't S. Oberfelder,	.	.	.	.	Sidney.
M. E. O'Brien, Supt. of Hatcheries,	.	.	.	.	South Bend.

NEVADA.

Geo. T. Mills,	.	.	.	.	Carson City.
F. C. Boyce, Superintendent of Hatcheries,	.	.	.	.	Carson City.

NEW HAMPSHIRE.

W. T. Shurtleff,	.	.	.	.	Lancaster.
F. L. Hughes,	.	.	.	.	Ashland.
Nath'l Wentworth,	.	.	.	.	Hudson.

NEW JERSEY.

Geo. Pfeiffer, Jr.,	.	.	.	.	Camden.
H. P. Frothingham,	.	.	.	.	Mt. Arlington.
P. W. Page,	.	.	.	.	Summit.

NEW YORK.

Barnet H. Davis, President,	.	.	.	.	Palmyra.
Hendrick S. Holden,	.	.	.	.	Syracuse.
Wm. R. Weed,	.	.	.	.	Potsdam.
Cha's H. Babcock,	.	.	.	.	Rochester.
Edward Thompson,	.	.	.	.	Northport, L.I.
Charles A. Taylor, Assistant Secretary,	.	.	.	.	Albany.

OHIO.

Geo. Falloon, President,	.	.	.	.	Athens.
B. F. Seitner, Secretary,	.	.	.	.	Dayton.
E. H. Shorb,	.	.	.	.	Van Wert.
Albert Brewer,	Tiffin.
J. W. Owens,	Newark.

OREGON.

H. D. M'Guire, Fish and Game Protector,	Portland.
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PENNSYLVANIA.

S. B. Stillwell, President,	Scranton.
H. C. Demuth,	Lancaster.
James A. Dale,	York.
Louis Streuber,	.	.	.	.	Erie.
D. P. Corwin, Secretary, 413 Wood Street,	.	.	.	.	Pittsburg.
Jas. W. Correll,	.	.	.	.	Easton.

PENNSYLVANIA GAME COMMISSION.

Coleman K. Sober,	.	.	.	.	Lewisburg.
Wm. M. Kennedy,	.	.	.	.	Allegheny City.
E. B. Westfall,	.	.	.	.	Williamsport.
James H. Worden,	.	.	.	.	Harrisburg.
J. A. Stearns,	.	.	.	.	Wilkesbarre.
Charles Haebner,	.	.	.	.	Philadelphia.

RHODE ISLAND.

J. M. K. Southwick,	.	.	.	.	Newport.
Wm. P. Morton,	.	.	.	.	Johnstown.
H. T. Root,	.	.	.	.	Providence.
C. W. Willard,	Westerly.
A. D. Roberts,	Woonsocket.

SOUTH CAROLINA.

Hon. A. P. Butler,	Columbia.
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TENNESSEE.

W. W. McDowell,	Memphis.
H. H. Sneed,	Chattanooga.
Edw. D. Hicks,	Nashville.

UTAH.

John Sharp, Warden,	Salt Lake City.
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VERMONT.

John W. Titcomb,	St. Johnsbury.
Horace W. Bailey,	Newbury.

VIRGINIA.

Dr. J. T. Wilkins,	Bridgetown.
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WASHINGTON.

James Crawford,	Vancouver.
— Bowdman, Game Warden,	Seattle.

WISCONSIN.

Edwin E. Bryant, President,	.	.	.	Madison.
Calvert Spensley,	.	.	.	Mineral Point.
Jas. J. Hogan,	.	.	.	LaCrosse.
Wm. J. Starr,	.	.	.	Eau Claire.
Currie G. Bell,	.	.	.	Bayfield.
Dr. E. A. Birge,	.	.	.	Madison.
Henry D. Smith,	.	.	.	Appleton.
Jas. Nevin, Superintendent,	.	.	.	Madison.

WYOMING.

Louis Miller,	.	.	.	Laramie.
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[B.]

LIST OF PONDS LEASED

By the Commissioners on Inland Fisheries, under Authority given by Chap. 384, Sect. 9, of the Acts of 1869.

1877.

- Oct. 1. Fort, Great Spectacle and Little Spectacle ponds, in Lancaster, to inhabitants of Lancaster, 20 years.

1879.

- July 1. Fresh Pond, in Falmouth, to Thomas H. Lawrence, 20 years.

1882.

- March 1. Blair's Pond, in Blandford, to Curtis M. Blair and another, 15 years.
April 1. Ward Pond, *alias* Wightman Pond, in Ashburnham, to Herbert F. Rockwood and another, 15 years.
May 1. Horn Pond, in Woburn, to inhabitants of Woburn, 15 years.
June 1. Wickaboag Pond, in West Brookfield, to inhabitants of West Brookfield, 15 years.

1883.

- April 6. Fresh Pond, in Tisbury, to Allen Look and others, 15 years.
23. Keyes Pond, in Westford, to M. H. A. Evans, 15 years.
May 8. Singletary Pond, in Sutton and Millbury, to towns of Sutton and Millbury, 15 years.
7. The Great Pond, in Ashfield, to town of Ashfield, 15 years.

1884.

- July 17. Farm Pond, in Cottage City, to John C. Hamblin and others, 15 years.
Aug. 30. Sand Pond, in Ayer, to inhabitants of Ayer, 15 years.
Sept. 5. Great Pond, in North Andover, to inhabitants of North Andover, 15 years.

[C.]

DISTRIBUTION OF TROUT FRY, 1896.

Barnstable, Bristol and Plymouth Counties.

John Nicholson, for waters in Hyannis.
Israel Crocker, for waters in Hyannis.
A. S. Backus, for waters in Barnstable.
H. S. Perkins, for waters in Bridgewater.
Nathan Everett, for waters in Fall River.

Essex County.

Oscar Stowell, for waters in Lynnfield.
J. A. Blake, for waters in Ipswich.
A. L. Clark, for waters in Ipswich.
J. H. Blake, for waters in Ipswich.
A. I. Savory, for waters in Ipswich.
Wm. H. Hills, for waters in Ipswich.
J. G. Sperling, for waters in Ipswich.
A. B. Clark, for waters in Ipswich.
H. W. Peabody, for waters in Beverly.
Seth Clothey, for waters in Peabody.
Geo. H. Webster, for waters in Haverhill.
C. N. Murray, for waters in Bradford.

Middlesex County.

Caleb Smith, for waters in Chelmsford.
Wm. A. Lang, for waters in Chelmsford.

G. A. Coburn, for waters in Chelmsford.
Daniel Going, for waters in Wilmington.
J. C. Hartshorne, for waters in Wakefield.
Waldo Spaulding, for waters in Townsend Harbor.
G. H. Maynard, for waters in Hudson.
C. F. Clark, for waters in Sudbury.
W. Messenger, for waters in Melrose.
C. A. Jones, for waters in Woburn.

Worcester County.

G. N. Dyer, for waters in Gardner.
O. O. Oliver, for waters in Templeton.
J. W. Fairbanks, for waters in Westborough.
F. W. Forbes, for waters in Westborough.
I. N. Keyes, for waters in Paxton.
Ledyard Bill, for waters in Paxton.
C. L. Allen, for waters in Worcester.
A. S. Lowell, for waters in Worcester.
J. F. Cumming, for waters in Boylston.
C. F. Rice, for waters in Grafton.
R. B. Dodge, for waters in Charlton.
C. V. Dudley, for waters in Northbridge.
F. N. Eddy, for waters in Paxton.
T. P. Brown, for waters in Rutland.

G. W. Cook, *et al.*, for waters in Barre.

B. F. Brooks, *et al.*, for waters in Barre.

S. C. Perham, for waters in Peter-sham.

C. W. Bates, *et al.*, for waters in Phillipston.

C. E. Fay, for waters in Northboro.

Chas. Hill, *et al.*, for waters in Webster.

Hampden and Hampshire Counties.

A. J. Northrup, for waters in Monson.

W. H. Brainerd, for waters in Palmer.

H. C. Mabie, for waters in North-field.

Berkshire County.

Fred. W. Champney, *et al.*, for waters in North Adams.

C. W. Burton, for waters in Cheshire.

W. S. Jenks, for waters in Savoy.

J. B. Richmond, for waters in Adams.

Henry Horburgh, for waters in Hinsdale and Windsor.

J. M. Stevenson, for waters in Pittsfield.

J. H. Wood, for waters in Dalton.

F. G. Crane, for waters in Dalton.

G. K. Baird, for waters in Tyringham.

E. J. Noble, for waters in Windsor.

[D.]

FISH SEEN IN THE LAWRENCE FISHWAY IN THE
SEASON OF 1896.

LAWRENCE, Oct. 7, 1896.

EDWARD A. BRACKETT.

DEAR SIR:—I enclose my report of fish seen here at Lawrence this season. I doubt if I see any more salmon this season; I certainly shall not unless the river is much higher than it is now. Probably when the river does rise it will come so high that I cannot see the fish, unless I should see one trying to jump the dam, or they should get into that pool at the foot of the dam, and be left there by receding water. If I see any, I will write you at once, so it can be added to report.

Fish seen in the Merrimac River, near the Fishway, at Lawrence in 1896.

The first of March the Merrimac River was higher than it has been any year before since the Lawrence dam was built. The river was full of great cakes of ice, uprooted trees, logs, etc. When the water went down, about a third of the fishway, at the upper end, was completely torn away. The high water flooded the lower floors of many of the mills; at one mill it filled a lot of large tubs used in bleaching. When the water went down, a large number of suckers and chubbs were found in the tubs. This shows that these fish run up the river very early in the season.

Lampreys appeared at the fishway, hanging onto the rocks, about the first of May. They increased in numbers very fast, and from the 10th to the 20th of June there were hundreds of them struggling up over the rocks, as far up as there was any water to cover them. They all disappeared about the first of July. I thought they had all run up into a big pool at the south end of the dam, but I found none there when the water fell off so that I could draw a net through the pool.

Salmon were seen jumping at the foot of the dam June 10, and nearly every day until the water got so low that very little came over the dam.

There were a lot of salmon in the pool mentioned above from the 25th of June until the 25th of July. They were seen, by a large number of persons, trying to jump up the dam. They were counted at different times, the count varying from ten to twenty. This pool acted as a kind of trap. When there was a good body of water coming over the dam, it was easy for the salmon to swim up into it; but when there was no water coming over the dam, the salmon could not get out down the river. I attempted to take the salmon out of the pool July 24, but the water was so deep I could not get them. July 25, with the aid of four men and a seine, I took ten salmon out of the pool and put them in the river above. Since that time, have seen no salmon. Have seen a few suckers, chubbs and hornpouts that struggled up into the pool.

THOMAS S. HOLMES, *Deputy,*
In charge of Lawrence Fishway.

[E.]

REPORTS OF DEPUTIES.

MARION, Dec. 13, 1896.

Commissioners on Inland Fisheries and Game.

GENTLEMEN: — In submitting my report, I can say that, while there have been more violations of the fish and game laws during the year than usual, the violations have been looked after very closely, and several parties have been taken into the courts and paid the penalty of their offenses, as the following will show: April 13, in connection with officers Proctor and Rhodes, convicted parties in Weymouth for seining smelt; amount of fines imposed and paid, \$114. May 6, convicted parties in New Bedford for having in possession short lobsters; amount of fines imposed, \$250; being unable to pay fine, both were sent to jail for three months. May 18, in connection with officer Proctor and others, convicted fifteen men from Dartmouth and surrounding towns for shooting coot; amount of fines imposed and paid, \$290. August 10, convicted Jose Alberto of Paddocks Island for having in his possession short lobsters; amount of fine imposed and paid, \$40. August 13 and 15, in connection with officer Proctor, convicted parties on Long Island and at Revere for short lobsters; all appealed to superior court, pleaded guilty and paid fines amounting to \$280.

Several complaints of snaring have been made, and considerable time has been spent in looking after them, but have been unable to get any convictions. In tabulating the returns from the pounds and net fishermen, I find an increase of forty-two over last year; and, while the totals show a large increase in the catch of alewives, scup, squeteague, mackerel, bluefish and others, they also show a large falling off in the catch of other kinds, and as a whole do not compare favorably with last year.

In my report of two years ago I called your attention to the falling off in the catch of lobsters; this year we have received returns from 453 fishermen, the largest I think ever reported before, and, while the total catch is larger than last year, the catch per pot for 1896 has

fallen below the catch of 1895 at least 10 per cent. The decrease in the catch of lobsters per pot has fallen from 82 per cent. in 1890 to 45 per cent. in 1896. Some method should be adopted regulating the catching, so that the supply can be kept up, and at the same time be a business of profit to the fishermen catching them. The price of lobster has already got beyond the reach of the average man, and, unless stringent measures are adopted, will in time become as extinct as by overfishing was that mighty roamer of the deep that swallowed Jonah.

JOHN W. DELANO,
Deputy.

E. A. BRACKETT, *Chairman of Commissioners on Inland Fisheries and Game.*

DEAR SIR:—I have patrolled the south-eastern coast of Massachusetts in the steamer "Ocean Gem" from May 16 to October 8, ninety-one days of which were spent in Buzzard's Bay.

Menhaden were plentiful in said bay during the summer months, and left about the first of October.

There was only one violation of the seining law, to my knowledge, and the party was arrested and convicted. The fishermen seem determined to violate the lobster law, and continue to secrete the little ones and dispose of them, regardless of the consequences.

It is very difficult to enforce the present lobster law, as the fishermen put the little ones in a car or bag as soon as they catch them, and when anybody attempts to go near them said crates or bags are pushed overboard. I have seen thousands of small lobsters thrown into the water during the past summer, on the approach of the steamer "Ocean Gem," said lobsters being confined in crates in such a manner that they could not escape, and would consequently die.

Another violation of importance, to which I wish to call attention, is the snaring of game birds. There are men in this State who make a business of snaring, using thousands of snares, made for that purpose, of very fine copper wire.

These people leave their snares set after they get through tending them, and said snares for months destroy birds that are not of any use to anybody.

Unless this business is stopped, I think the ruffed grouse will soon be a rare bird in this State.

I have made 64 arrests and got 63 convictions; seized 11,372 short lobsters and planted 1,500,000 eggs. Amount of fines imposed by the courts, \$3,614.50.

Respectfully,

W. H. PROCTOR,
District Police Officer.

BRADFORD, NOV. 14, 1896.

Commissioners on Inland Fisheries and Game.

GENTLEMEN :—I respectfully submit the following as the results of my work in enforcing the fish and game laws for the season of 1896. In June complaints were sent me from Rockport, Gloucester and Manchester, of several persons being engaged in catching and selling short lobsters. I investigated the complaints, and found that a party from Salem was furnishing outfits for the catchers at Manchester to carry on the business in a regular, systematic way. The catchers would sink the short lobsters in small cars, then those who furnished the outfit would visit the cars and carry the lobsters to such places for a market as best suited their convenience. As the carrying away of the lobsters was done early in the morning or in the night, there seemed to be comparatively but few chances of their being detected. I was, however, able to secure the arrest of eight persons from the above-named places, engaged in handling short lobsters; seven of them were convicted, and fined. I have arrested seven persons for shooting and fishing on the Lord's Day, all of whom were convicted. Two men were found guilty of using a set net in a pond, and fined \$20. I also arrested a party for peddling lobsters from a cart on the Lord's Day; fined \$10. Number of arrests, 18; total amount of fines as imposed in lower courts, \$3,000. There are now pending in the superior court three cases, the fines of which amount to \$1,900. Seven cars, containing 760 short lobsters, were seized, the cars were destroyed and the lobsters liberated.

There have been no complaints of snaring partridges in towns where so many have been taken in previous seasons. I am told that persons formerly engaged in snaring partridges have been forced to seek other employment, from the fact that partridges are so scarce it is no longer profitable to attempt to take them by means of snares.

Respectfully submitted,

B. P. CHADWICK,

Deputy Commissioner.

PITTSFIELD, MASS., DEC. 1, 1896.

MR. EDWARD A. BRACKETT, *Chairman Commissioners on Inland Fisheries and Game.*

DEAR SIR:—I have to report for the western part of the State, that for our trout fishing we have not for many seasons had better catches, especially in size. A great many large ones have been caught, and our sportsmen say fishing has been good, considering the number of fishermen.

For birds, woodcock were not very plenty, but partridge shooting has been good, never better than at the first of the season, but snares have hurt us some. If it were not for the pot hunters, we could not ask for better sport than we have in this part of the State.

Complaints come in from all directions, and I have done the best I could to follow them up for the purpose of enforcing the laws for the protection of fish and game. Arrests made by me have been nine in number, as follows: two for taking trout out of season, one for shooting game out of season, four for Sunday shooting and two for using dynamite in Onota Lake. Of these, five were convicted and paid fines, and two more have the charges held over them.

I have taken up eleven set lines, two from Round Pond in Berkshire, four from Cheshire reservoir, three from Onota Lake, one from Pontoosuc Lake and one from Saw-mill Pond in Berkshire. Found one trap for catching trout in stream, which I destroyed, and have taken up about one hundred snares. Worked with a New York State deputy, and captured two men who were snaring birds and shipping them into this State for market. Found several small lobsters in one of the markets, which were alive, and proprietor said he would ship them back to Boston. I have served papers on three mill owners for depositing sawdust in streams, one at Becket Centre and two in town of New Marlborough.

In the spring of 1895 Mr. F. G. Crane of Dalton put into the woods and covers of that town twelve pheasants, which were without doubt of the Mongolian breed. Most of them lived through the winter, and a number of broods were hatched and raised during the summer. We thus have good proof that the pheasant will live and thrive in this part of the State, which has the most trying climate of any. The sentiment is so very strong in this locality that it is wise for the State to encourage and aid the propagation of these birds.

The Follett case, which has been reported twice before, is still unsettled. It was supposed, when the supreme court overruled the defendants' exceptions in September, 1895, that the fine would be paid without further delay. This did not prove to be true, as a motion was filed at the superior court term in January of this year for continuance of sentence, on the ground, as near as I can learn, that the court erred in not stating under which of the three counts sentence was given. This motion was denied and appeal made to the supreme court. District Attorney Gardner has continued to show his determination to prosecute the case, and see that the sentence is carried out. I have no doubt of his success, though it may take some time to bring it about.

Respectfully submitted,

BENJAMIN SMITH,
Deputy Commissioner.

HON. E. A. BRACKETT, *Chairman Commissioners of Inland Fisheries and Game.*

DEAR SIR: — My commission as deputy was received August 25, last, and since that date I have been at work every day the weather has permitted. My expenses have been paid by the Rod and Gun Club of Massachusetts, with headquarters in Boston.

I have made two convictions for violations of the snaring laws. Clarence Hattenburg of North Easton for snaring two ruffed grouse, and Harvey Hunter of Wendell for setting snares, for snaring two grouse, for snaring three grouse and for snaring two rabbits. Since receiving my commission I have also advised twelve men found out in the woods before the law was off to go home; also stopped one party fishing with set lines, and destroyed over three thousand snares in different portions of the State.

My journal from August 20 to November 25 is hereto attached.

Very truly yours,

W. E. QUIGGLE.

Boston, Dec. 11, 1896.

Report of Warden.

Aug. 20-27. In Boston, learning duties and gathering information; also each day took a short trip in the country, and sent home six persons who were out with guns; could not arrest, not having qualified.

Wilmington and Tewksbury. Sent home one gunner seen shooting, not being qualified to arrest.

28. Qualified as deputy. Went from Canton Junction to Dedham. No gunning heard or seen.

29. Rain.

30. Dedham, Needham, West Dedham to Dedham Road. Stopped party fishing with set lines, and sent home four men with guns.

31. Winchester to see Commissioner Brackett.

Sept.

1. Boston getting information.

2. Sharon to Canton Junction, Dedham Road and Dedham.

3. Sharon and Readville.

4. Dedham. Sent home one man with gun, but no evidence of shooting, so could not arrest.

5. Canton and Dedham. (The past four days being to put a stop to a party of three who make a practice of shooting before the law goes off. Found them in the woods, but no evidence to convict or arrest.)

6. Rain.

7. Sharon. Complaint of quail shooting unfounded.

8. Boston.

9. Rain.

10. Rain.

- Sept. 11, 12. Middleton, Topsfield and Boxford, after snarers; found old snares, but not set this season.
13. Canton. Heard one party shooting, but could not find him.
- 14-18. Easton, on snaring complaint; about two hundred snares in the town. Saw one person set snare, but did not arrest, preferring to wait till arrest could be had for the bird.
19. Back to Boston for a few days, as it had become known that enforcement of the snaring law was to be made.
20. Rain.
21. Rain.
- 22-25. Easton, and took help to act as witness. Went over all the country, locating snares, and found two birds in a hedge of seven snares. Laid all day from daybreak to dark, with witness also.
26. Laid from daybreak till about 1.50 P.M., when a person (Clarence Hattenburg) came, took both birds out and reset the snares, when he was arrested. Took him to North Easton, swore out warrant, and he was put under bail to appear at Taunton on 28th.
28. Took witness and appeared at court in Taunton, where Hattenburg pleaded guilty and was fined \$20.
29. Walpole and East Walpole. Complaint of quail shooting unfounded.
- Oct. 2-12. Walpole, part of Foxborough, Milford, Norfolk, Bellingham and Uxbridge. At last place some snaring is done.
- 13-17. Mansfield and Foxborough. Not a snare tended since last visit.
19. Went to Orange.
20. Hunting snares.
21. Rain.
22. Found about one dozen snares.
24. Moved to Warwick; found about seventy-five snares.
26. Sent skeleton to Boston; found new line of snares.
28. Found new line of snares and one snared partridge.
31. Rain past three days; more snares found; moved to Wendell.
- Nov. 1. Snares found towards Northfield.
2. New snares found towards Northfield; two partridges in snares.
6. Rain past two days; found two partridges and one rabbit in snares; traced snares as far as Northfield mountain; now tending four lines of snares.
10. Saw a man setting snares.
- 11-14. Now watching five partridges, two rabbits and one squirrel in snares; zero weather.
15. Case given away.
18. Have laid by the snares five days; not visited by any one.
21. Snowstorm; thermometer almost to zero.
23. Went to Greenfield, swore out warrant, and Deputy Sheriff Fowler arrested Harvey Hunter of Orange.

- Nov. 24. Attended court at Orange before Judge Dana. Hunter found guilty on four counts: for setting snares; for snaring two partridges; for snaring three partridges; for snaring two rabbits; fined \$20 and costs on first count, the other three held in suspense, under promise to obey the law.
25. Came home.

MILFORD, MASS., Nov. 9, 1896.

Mr. E. A. BRACKETT, *Chairman Commissioners on Inland Fisheries and Game.*

DEAR SIR:—In submitting my annual report I will say that partridge and quail have been quite plenty, but have decreased fast in a very short time, owing to those who make a practice of shooting for the market.

I suggested once before, and repeat it, that the season should be shortened to two months, from October 1 to December 1, on both quail and partridge. My reason for it is this: the birds would be in better condition, full grown, and so many would not be killed off.

In one market in this town something over three hundred birds were sent out last year, and in one day of this year sixty were sent from the same place. That will give one some idea of the number of birds shot in one place for the market.

Quail are plenty, but small; woodcock scarce.

Relative to violating the law, I have had very few complaints; the Sunday law is broken most frequently. Have been on the lookout for offenders. Those suspected have been notified that if caught they would be prosecuted, and that, with the posters, has prevented, I think, much illegal hunting and fishing.

Respectfully yours,

MORTIMER EDWARDS,
Deputy.

MILFORD, MASS., Nov. 9, 1896.

To Hon. E. A. BRACKETT, *Chairman of Commissioners of Massachusetts Inland Fisheries and Game.*

DEAR SIR:—I have the pleasure of saying in this, my first report, that game, in my opinion, is very plenty, especially partridges. There are some quail in this section, but not as many as a few years ago. Now I would like to see this change made in the game laws: Open season to begin October 1 or 15 (on all game at the same time), and close December 15, with a clause making Sundays part of the close season. There are some persons who are bound to hunt on Sunday, and if they were fined for the birds as well as for Sabbath

day shooting, they might stop it. There have been no arrests here this season for violating the game law, but as there is a large territory, no doubt there were some birds killed out of season.

The Mongolian pheasants are feathering out finely and are getting quite tame compared with what they were when they first came.

Yours respectfully,

WM. N. PRENTISS.

P. O. Box 815, MILFORD, MASS.

BRAINTREE, MASS., NOV. 10, 1896.

MR. EDWARD A. BRACKETT, *Chairman of the Commissioners on Inland Fisheries and Game.*

DEAR SIR:—I received the appointment of deputy commissioner, dated April 18, 1896, and in compliance with said appointment I make the following report.

I am located at the head of navigation, where the Monaquot River empties into the salt water.

Smelts and alewives have been very numerous this season in the Monaquot River and Smelt Brook, also at East Weymouth, in Back River, so called. This is due largely to the East Weymouth Fish and Game Club. Since the formation of this club the violators of the fish and game laws have been watched day and night during the spawning season, and this has had its good effect. A great deal of credit should be given this club.

I have made it my special duty to look after the fishways. I see that they are put in order before the fish begin to run, and that they are kept in good order during the spawning season. The great trouble has been to keep the boys out of the fishways. The mill owners on the stream do not bother themselves about keeping the violators away from the fishways; and the local officers, in order to look after them, have to spend more time than they can afford. I think, if the deputy had the appointing of the local officers, better results would follow.

I made it my duty to see if any small fish hatched this season came down the stream into the salt water. I found that the latter part of June thousands of fish, from one to two inches in length, came down the stream and entered the salt water, and I have no doubt most of them will return next season.

With the co-operation of the local officers, I think we can keep our fish and game well protected. I have an extensive knowledge of the characteristics of alewives and smelts, having made a study of their ways and habits in the rivers running into Quincy Bay for a period of over forty years.

Game in this section is not very plenty, for want of sufficient feeding grounds. I have received no complaints from the snaring or killing of game in the close season. I find the Sunday law in regard to fishing and gaming is not well observed. This is especially noticeable at the fishways in the smelting season.

I have had the fish and game laws posted at every fishway, and on many public buildings.

I would like to make a suggestion in regard to fishing for pickerel through the ice in all State ponds. It is a well-known fact that pickerel in our ponds have grown wonderfully less every year, and there should be some protection, if we wish to stop their complete annihilation.

No complaint has been made to me, owing to the lateness in the season of my appointment. If reappointed, I shall visit all the local officers, and make such arrangements as will better protect our fish and game.

Respectfully submitted,

HENRY GARDNER,
Deputy Commissioner.

WORCESTER, Nov. 12, 1896.

MR. E. A. BRACKETT, *Chairman Commissioners of Inland Fisheries and Game.*

DEAR SIR: — Since my last report I have made four arrests: two for fishing with nets, fined \$20; one for fishing with set line, discharged; one for snaring partridges, fined \$20.

Yours very truly,

JOHN F. CUMMING,
Deputy.

SPRINGFIELD, Nov. 18, 1896.

E. A. BRACKETT, Esq.

DEAR SIR: — I desire to report to the commissioners the result in the deer-shooting case, tried at Huntington, November 12. Samuel D. Crouch, the defendant, was fined \$25, which he paid. I desire in this connection to call the attention of the commissioners to the fact that the only law on the statute book for the preservation of deer is that of 1882, which, in the opinion of the court in this section, is very deficient. This man Crouch is now making his boasts that when he can get off for \$25 it's so cheap he will shoot every deer he can find. Up in Blandford, Mass., there is a wealthy farmer who turns a pair of deer loose each year, hoping thereby to increase the number. I suggest some action be taken before the coming Legislature, to change the law.

Respectfully yours,

JAMES ANDERSON.

ARLINGTON HEIGHTS, MASS., October, 1896.

To the Board of Fish and Game Commissioners, E. A. BRACKETT, Chairman.

I would most respectfully report that for the last season ruffed grouse have been quite plenty in this vicinity, woodcock scarce and quail have increased. I knew of but two covies last winter, which I fed all through the heavy snows. This Fall I know of five different broods, and have made arrangements to have grain spread around in different localities, where I think they will pass the winter.

I have not been obliged to make any arrests, although I have stopped several different parties from hunting and fishing on the Lord's Day, and for shooting small birds and game out of season. All were for the first offence.

Respectfully yours,

WM. P. HADLEY,

Deputy.

Extract from Report of Mr. Alexander Jones, Fish Culturist, at Wood's Holl, Mass., Station, on the Lobster Work during the Season.

The lobster work began April 10, with a small collection from the immediate vicinity. The collections were confined for the most of the season to Buzzard's Bay and Vineyard Sound, a territory covering perhaps thirty miles. In some instances collections were also made from New Bedford. The collection of eggs from all sources, up to July, amounted to 80,658,000 eggs, which was the production of 5,580 lobsters. There were 75,189,000 fry produced and liberated in near-by waters. Trips continued to the fishing ground after July 1 and 6,533,000 fry were hatched and planted. These eggs were in an advanced stage of development, and began hatching shortly after being taken, consequently were planted in the locality where they were collected. The total collection of eggs was 90,000,000, which produced 83,722,000 fry, — an increase in eggs over last season of 9,000,000, and in fry of 12,725,000. The greater part of this collection made in July was from New London and Noank, Conn., those caught in these waters having shed their eggs almost entirely by July 1.

GLOUCESTER, MASS., Oct. 28, 1896.

HON. E. A. BRACKETT, *Chairman Board of Commissioners of Fish and Game.*

DEAR SIR: — About the middle of last April, at the request of the Hon. United States Commissioner of Fish and Fisheries, I received

an appointment as deputy fish and game warden. This appointment also granted authority to "take or cause to be taken egg-bearing lobsters, for the purpose of propagation, at the Gloucester station."

I beg to submit the following report of the work.

The first eggs were taken April 22, and from then until July 13, when the last were received, 708 lobsters, which yielded 9,045,000 eggs, were collected.

During the early part of the season and until as late as the middle of June the field of operations was confined to the territory between Kettle Island and Essex. After that date we attempted to extend our field westward and include all territory to Hull, Mass. Only a very few lobsters were taken in this territory, however, the total being 12 lobsters, which yielded 199,000 eggs.

During the season 8,192,000 fry were hatched and liberated in Massachusetts waters. In planting the fry we endeavored to place them near the fishing centres from which the egg lobsters were received. The field of distribution extends from Marblehead along the coast to Halibut Point and into Ipswich Bay to near Annisquam Light.

The "McDonald universal automatic hatching jar" was the apparatus used in this work, and I think it is the best known at present.

Besides the above, 374 lobsters, which yielded 5,489,000 eggs, were collected in Maine and New Hampshire waters, and the eggs shipped to this station. These eggs produced 4,927,000 fry, 4,271,000 of which were planted in Massachusetts waters.

Respectfully submitted,

E. F. LOCKE,

In Charge of Station.

PROVINCETOWN, 1896.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I submit the following report as deputy for enforcing the fish and game laws for the year 1896. I have visited the Sandwich, Barnstable and Mashpee woods twice, and found the laws were respected on deer. I received a complaint from Eastham, May 20, of unlawful shooting of shore birds. I visited the marshes three times, and could find no one in that locality. Also received a complaint from Chatham, from the commissioners, to attend to the beach shooting about July 15. I was on the beach four days before July 15, and the law was observed by all the fishermen and sportsmen of Chatham. I have visited fifteen towns and called on all the fishermen, and they were pleased to give me all the information I required. The catch of fish in Barnstable Bay has been large on herring and codfish, other kinds only moderate. Quail are reported very plenty on the Cape. I have put carp in two ponds, one in Truro and one in Wellfleet.

S. B. RICH, *Deputy Commissioner.*

[F.]

LEGISLATION.

Acts of 1896.

[CHAPTER 110.]

AN ACT RELATIVE TO FISHING IN LAKE CHAUBUNAGUNGAMAUG IN THE
TOWN OF WEBSTER.

Be it enacted, etc., as follows :

Whoever takes or catches any fish in the waters of Lake Chaubunagungamaug, in the town of Webster, between the first day of January and the first day of June in each year, shall be punished by a fine not exceeding twenty dollars for each offence. [*Approved February 25, 1896.*]

[CHAPTER 229.]

AN ACT RELATIVE TO BLACK BASS FISHING.

Be it enacted, etc., as follows :

Whoever takes from the waters of this Commonwealth a black bass less than eight inches in length, or sells or offers to sell or has in his possession with intent to sell any such black bass, shall forfeit ten dollars for each fish so sold or offered or exposed for sale. In any prosecution under this act the possession of any black bass less than eight inches in length shall be prima facie evidence of a violation thereof. [*Approved March 28, 1896.*]

[CHAPTER 259.]AN ACT TO PROHIBIT FISHING THROUGH THE ICE ON THE NORTHERLY
END OF LAKE QUINSIGAMOND, IN WORCESTER OR SHREWSBURY.

Be it enacted, etc., as follows :

SECTION 1. Whoever takes or attempts to take through the ice any fish from the water of that part of Quinsigamond lake known as Abbott's pond, in Worcester or in Shrewsbury, northerly of the turn-

pike bridge, at any time prior to the first day of November in the year nineteen hundred and one, shall for each offence be punished by fine not exceeding five dollars; and in any prosecutions under this act the possession of any fish upon, or on the shores of, said lake shall be prima facie evidence of a violation of this act.

SECTION 2. This act shall take effect upon its passage. [*Approved April 11, 1896.*]

[CHAPTER 268.]

AN ACT RELATIVE TO THE TAKING OF SCALLOPS.

Be it enacted, etc., as follows:

SECTION 1. Whoever at any time between the first day of April and the first day of October shall take scallops from any of the flats or waters of the state, or shall buy or sell or have in his possession any scallops, shall be punished by a fine of not less than twenty dollars nor more than fifty dollars for each offence.

SECTION 2. The taking of seed scallops from any of the flats or waters of the state is hereby prohibited, and whoever shall be convicted of taking such scallops shall be punished by a fine of not less than twenty dollars nor more than fifty dollars, but a person taking such scallop and immediately returning it alive to the flat or waters from which it was taken shall not be subject to such penalty.

SECTION 3. Chapter ninety-six of the acts of the year eighteen hundred and eighty-seven is hereby repealed. [*Approved April 13, 1896.*]

[CHAPTER 114.]

RESOLVE TO PROVIDE FOR THE ESTABLISHMENT OF A FISH HATCHERY
IN THE WESTERN PART OF THE COMMONWEALTH.

Resolved, That there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding three thousand dollars, to be expended under the direction of the commissioners on inland fisheries and game for the purpose of establishing and maintaining in the western part of the Commonwealth a hatching house for the propagation of trout, salmon and shad, and for the purchase and erection of buildings necessary for that purpose. [*Approved June 4, 1896.*]

[G.]

LOBSTER RETURNS.

1896.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg- bearing Lobsters liberated.
Joseph Rogers, . . .	Boston, . . .	2,964	118,996	1,942
Manuel Silva, . . .				
Joseph Gasper, . . .				
J. M. Pinta, . . .				
J. P. Serrilha, . . .				
Joseph Silva, . . .				
Peter Silva, . . .				
Albert Hansen, . . .				
Tony Silva, . . .				
A. F. Ferreira, . . .				
Joaquin Perry, . . .				
Antoine Silva, . . .				
Manuel P. Silva, . . .				
M. E. Grace, . . .				
A. P. Silva, . . .				
A. P. Silva, . . .				
Antonio Francis, . . .				
J. R. Ferreira, . . .				
Andrew Ferreira, . . .				
Tom Winslow, . . .				
Custodio Goveia, . . .				
Antone A. Silva, . . .				
M. De Rosa Dias, . . .				
M. D. Moura, . . .				
J. E. Alberto, . . .				
J. E. Cahoon, . . .	Barnstable, . . .	40	1,211	-
C. B. Chapman, . . .	Beverly, . . .	248	16,339	373
W. E. Bennett, . . .				
W. H. Kennedy, . . .				
C. D. Davis, . . .				
C. C. Foster, . . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
J. E. White, . . .	Brant Rock, .	378	11,923	168
A. L. Manter, . . .				
H. C. Phillips, . . .				
D. B. Blackman, . . .				
H. P. Taylor, . . .				
N. C. Besse, . . .				
Henry Beal, . . .	Beachmont, .	295	5,273	136
Thomas Mason, . . .				
John Monroe, . . .				
W. E. Merryman, . . .				
A. B. Robinson, . . .	Bay View, . . .	75	6,100	98
T. C. Leonard, . . .	Bournedale, . . .	50	2,782	36
W. H. Phinney, . . .	Chiltonville, .	523	27,889	565
H. L. Sampson, . . .				
H. A. Jordan, . . .				
Charles Rogers, . . .				
C. H. Pierce, . . .				
R. F. Swift, . . .				
J. W. Sampson, . . .				
L. S. Thurston, . . .				
George Atwell, . . .				
George Boutin, . . .				
Charles Boutin, . . .				
David Pierce, . . .				
Franklin Tilton, . . .	Chilmark, . . .	127	2,855	150
F. N. Smith, . . .				
R. P. Reed, . . .				
L. E. Atheron, . . .				
L. E. Cottle, . . .				
Onslow Stewart, . . .				
S. Patterson, . . .	Chatham, . . .	2,093	48,735	1,518
R. T. Bearse, . . .				
W. F. Hitchings, . . .				
Arthur Baker, . . .				
C. W. Jones, . . .				
E. S. Gould, . . .				
H. S. Doane, . . .				
E. Z. Ryder, . . .				
Fred Baker, . . .				
F. B. Nickerson, . . .				
D. C. Harding, . . .				
Robert Ellis, . . .				
Sylvester Eldridge, . . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
J. F. Eldridge, . . . W. R. Bloomer, . . . W. A. Bloomer, . . . O. M. Gould, . . . G. N. Eldridge, . . . Thomas Holway, . . . A. H. Bearse, . . . Geo. F. Rogers, . . . G. W. Bloomer, . . . F. Bloomer, . . . H. F. Gould, . . . Richard Gould, . . . A. S. Hammond, . . . F. W. Nickerson, Jr., C. F. Eldridge, . . . O. C. Eldridge, . . . B. N. Bloomer, . . . B. Bassett, . . .	Chatham, . . .	2,093	48,738	1,518
Manuel Vandura, . . . A. S. Figueredo, . . . J. F. Bandura, . . . M. S. Almas, . . . M. S. Thomas, . . . J. A. Silvia, . . . J. J. Grassie, . . . Levi Cadoza, . . . Oscar Anderson, . . . M. P. Valine, . . . Robert Ainslies, . . . F. E. Salvador, . . . Geo. E. Antoine . . . Andrew Peterson, . . . J. M. Smith, . . .	Cohasset, . . .	1,379	70,641	1,023
A. Tilton & Co., . . . J. E. Johnson, . . . H. J. Allen, . . . John Manley, . . . R. W. Rotch, . . . O. H. Stetson, . . . C. C. Allen, . . . Joshua Keeney, . . . Alfred Beebe, . . . Frank Peters, . . . J. H. Tilton, . . . J. W. Tilton, . . . D. P. Bosworth, . . . H. J. Jamieson, . . .	Cuttyhunk, . . .	669	50,210	2,443

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
J. F. Cornell, . . . F. M. Cottle, . . . Levi Jackson, . . . Robert Jackson, . . .	Cuttyhunk, . . .	669	50,210	2,443
J. E. Ellis, . . . Geo. E. Hall, . . . M. L. Howes, . . .	Dennis, . . .	36	494	102
W. A. Gifford, . . . Geo. N. Briggs, . . . Antoine De Avello, . . . J. H. Butts, . . . C. F. Manchester, . . .	Dartmouth, . . .	200	4,463	783
Geo. F. Freeman, . . . J. K. Burgess, . . . O. C. Hunt, . . . Isaac Symmes, . . . C. E. Peterson, . . . E. W. Cook, . . . F. E. Philipps, . . . Clarence Smith, . . . W. E. Peterson, . . . F. E. Wadsworth, . . .	South Duxbury, . . .	379	25,801	195
H. O. Hillman, . . . Antoine Silvia, . . . John Bunker, . . .	Edgartown, . . .	96	4,164	324
Fernando Josef, . . . Lemuel Davis, . . . E. E. Baker, . . . A. T. Chadwick, . . . W. A. Grew, . . . C. N. Jennings, . . . W. E. Nickerson, . . .	Falmouth, . . .	86	2,837	159
H. N. Wilbur, . . .	Fairhaven, . . .	23	201	28
J. H. Tripp, . . .	Fall River, . . .	62	1,720	85
C. H. Ryan, . . .	Gay Head, . . .	25	1,219	135
Joseph Douglass, . . . E. L. Small, . . . Walter Marchant, . . . E. D. Rust, . . . D. N. Mehlman, . . .	Gloucester, . . .	611	45,686	703

Lobster Returns—Continued.

PROPRIETOR.	TOWN.	Number of Traps used	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
H. W. Nelson, . . .	Gloucester, . . .	611	45,686	703
E. F. Parsons, . . .				
Melvin Parsons, . . .				
F. S. Alba, . . .				
Albert Parsons, . . .				
Charles Nason, . . .				
Joseph Parsons, . . .				
Geo. Sargent, . . .	Green Harbor, . . .	688	31,490	294
Fred Parsons, . . .				
Wilfred Keene, . . .				
W. H. Tolman, . . .				
W. M. Cushing, . . .				
Elbridge Perkins, . . .				
George Delano, . . .				
C. R. Peterson, . . .				
Lyman Sears, . . .				
H. P. Tolman, . . .				
O. A. Chandler, . . .				
B. P. Williamson, . . .				
E. R. Lapham, . . .	Hyannis, . . .	235	3,677	343
C. B. Cushing, . . .				
Thomas Pezzy, . . .				
F. N. Bencordo, . . .				
Geo. Sampson, . . .				
T. F. Phinney, . . .	Hull, . . .	728	37,536	488
O. S. Crosby, . . .				
A. B. Mitchell, . . .				
Andrew Galliano, . . .				
M. McDonald, . . .				
A. Cleverley, . . .				
J. D. Reed, . . .				
B. F. Pope, . . .				
F. Smith, . . .				
E. F. Pope, . . .	Ipswich, . . .	70	3,325	92
G. L. Hatch, . . .				
A. B. Cleverley, . . .				
Rust & Grant, . . .				
Charles A. Bailey, . . .	Lanesville, . . .	173	8,435	219
Henry L. Look, . . .				
W. B. Atkinson, . . .				
Warren Poland, . . .	Lanesville, . . .	173	8,435	219
G. H. Woodbury, . . .				
A. W. Riley, . . .				
Elias Haraden, . . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
W. H. Sargent, . Addison Woodbury, . Herman Marchant, .	Lanesville, .	173	8,435	219
J. J. Nye, . W. L. Richmond, . Lilburne Hiller, .	Mattapoissett, .	56	1,141	108
C. G. Story, . David Worth, . H. K. Story, . J. B. Knowlton, . J. G. Burnham, . W. S. Douglass, .	Magnolia, .	249	9,934	603
Sans Stanley, . J. W. Smithers, . Frank Dixey, . J. H. Magee, . J. T. Adams, . C. H. Smithurst, . J. W. Florence, . R. T. Millett, . W. F. Allen, . W. H. Tutt, . J. G. Stacy, . Geo. Hooper, . R. F. Russell, . Wm. J. Dodd, . J. W. Mace, . C. O. Briggs, . John Brown, . J. E. Stone, . Wm. W. Russell, . B. F. Stevens, . S. B. Perkins, . S. Q. Smith, . J. H. Hennessey, . B. H. Swett, . R. G. H. Roundy, . Richard Farry, .	Marblehead, .	933	71,728	2,750
Thomas Dow, . J. H. Dow, . L. O. Sargent, . J. S. West, . Charles Sargent, . J. H. Heath, .	Manchester, .	146	6,110	106

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
C. H. Gurney, . . . } Roswell Briggs, . . . }	Marion, . . .	62	2,530	116
Geo. Griswold, . . . } Samuel Bartlett, . . . } J. H. Valler, . . . } Robert Richards, . . . } Cornelius Briggs, Jr., . . . } L. B. Briggs, . . . } Wm. Harlow, . . . } Charles Wakefield, . . . } Geo. A. Manter, . . . } H. C. Bennison, . . . } W. H. Peterson, . . . } C. H. Dixon, . . . } Charles L. Griswold, . . . } James Gould, . . . } F. R. Peterson, . . . } Henry Dodge, . . . } P. M. Grath, . . . } S. B. Blackmer, . . . } A. L. Holmes, . . . } Stephen Holmes, . . . } C. W. Holmes, Jr., . . . } E. H. Arnold, . . . } G. W. Holmes, . . . } M. L. Chandler, . . . } Thomas Jordan, . . . } A. A. Nightingale, . . . } W. J. Nightingale, . . . } Thomas Stephens, . . . }	Manomet, . . .	1,659	69,469	1,456
Charles Wilson, . . . } S. M. Babbett, . . . } John Johnson, . . . } C. H. Place, . . . } B. A. Atwood, . . . } C. H. Bates, . . . }	Nantasket, . . .	282	12,905	134
Manuel Gracia, . . . } A. G. Mayhew, . . . } Manuel Flores, . . . } A. F. Fratus, . . . } M. F. George, Jr., . . . } Ventrene Perry, . . . } Manuel Simmons, . . . } Joseph Fratus, . . . } G. B. Taber, . . . } John Sater, . . . } C. P. Matterson, . . . }	New Bedford, . . .	1,174	44,364	3,609

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Joseph Silva, . . . Frank Duthie, . . . Joseph Marshall, . . . Manuel Madevi, . . . John Louise, . . . Antoine Vera, . . . Manuel Marshall, . . . Alonzo Holmes, . . . W. E. Skiff, . . . John Cross, . . . Joseph Marshall, . . . M. F. Elias, . . . Joseph Souza, . . .	New Bedford, . . .	1,174	44,364	3,609
C. W. Taylor, . . . G. H. Lamphin, . . . Samuel Covell, . . . G. W. Taylor, . . . C. E. Gove, . . .	Nahant, . . .	154	11,048	99
J. R. West, . . . M. W. Dunham & Co., . . . Geo. H. Dunham, . . . J. H. Eldridge, . . . Wm. Norcross, . . . W. N. Chase, . . . Jesse Seel, . . . A. B. Brooks, . . . J. H. Dennis, . . . A. A. Norcross, . . . J. N. Small, . . . J. P. Sansbury, . . . O. R. Pease, . . . John Watkins, . . . James A. Backus, . . . G. E. Coffin, . . .	Nantucket, . . .	562	23,214	752
F. H. Hayden, . . . Caleb Hayden, . . .	Orleans, . . .	33	783	27
David Newcomb, . . . Wm. H. Kenny, . . . Geo. Freeman, . . . F. M. Bowley, . . . J. W. Savage, . . . W. C. Snow, . . . J. C. Lenten, . . . J. D. Smith, . . . A. J. Emery, . . . J. H. Little, . . .	Provincetown, . . .	381	8,558	760

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Amos Lufkin, . . . } Fred Johnson, . . . } C. N. Morgan, . . . }	Pigeon Cove, . . .	97	4,832	8
A. M. Watson, Jr., . . . } James Deacon, . . . } L. G. Doten, . . . } J. M. Watson, . . . } Jerome Stone, . . . } A. C. Sampson, . . . } W. R. Thomas, . . . } J. P. Thurston, . . . } S. P. Burgess, . . . } J. H. Bagnell, . . . } J. B. Walker, . . . } Oscar Marsh, . . . }	Plymouth, . . .	453	28,013	590
C. P. Peterson, . . .	Quincy, . . .	45	2,846	1
Geo. E. Wendell, . . . } Peter Dixon, . . . } Wm. Stillman, . . . }	Rockport, . . .	185	12,273	374
Chas. H. Parker, . . . } E. W. Haines, . . . } G. L. Haines, . . . } C. E. Hoxie, . . . } J. D. Smith, . . . }	Sandwich, . . .	145	3,536	217
Chas. S. Brown, . . . } H. G. Tucker, . . . } James Fagan, . . . } W. D. Huntress, . . . } C. H. Berry, Jr., . . . } G. W. Berry, . . . } John Clarke, . . . }	Salem, . . .	456	11,505	363
A. H. Gibbs, . . . } Ezra Pierce, . . . }	Sagamore, . . .	45	1,279	70
Everett Litchfield, . . . } E. P. Pratt, . . . } Francis Mulkerne, . . . } J. K. Gannett, . . . } Eugene Pratt, . . . } Wm. Ward, . . . } Geo. F. Edson, . . . } J. W. Spooner, . . . } Daniel Ward, . . . } John Barry, . . . }	Scituate, . . .	1,094	42,486	949

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg- bearing Lobsters liberated.
Thomas Flynn, . . .	Scituate, . . .	1,094	42,486	949
Thomas Dwyer, . . .				
C. Driscoll, . . .				
Oscar Palmgreen, . . .				
John Welsh, . . .				
John Murphy, . . .				
John Raymond, . . .				
Edmund Landers, . . .				
James Dwyer, . . .	Squibnocket, . . .	108	2,926	151
D. W. Ward, . . .				
C. L. Cleveland, . . .				
J. D. Tillton, . . .				
A. T. Poole, . . .				
L. W. Mayhew, . . .	Swampscott, . . .	375	39,696	256
A. E. Reed, . . .				
W. J. Jones, . . .				
G. A. R. Horton, . . .				
A. G. Watts, . . .				
L. F. Woodbury, . . .				
T. E. Stone, . . .				
Henry Bayer, . . .	Salisbury, . . .	7	242	3
Edward Marsh, Jr., . . .				
R. A. Douglass, . . .				
C. H. Lord, . . .	Tisbury, . . .	140	2,342	89
G. H. Luce, . . .				
J. R. Tillton, . . .				
G. A. Rogers, . . .				
G. F. Tillton, . . .				
G. W. Manter, . . .	Truro, . . .	80	884	94
Warren Freeman, . . .				
C. H. Collins, . . .				
J. C. Myricks, . . .	Vineyard Haven, . . .	292	11,923	843
M. F. Cleveland, . . .				
Geo. E. Dolby, . . .				
F. M. Chase, . . .				
O. D. Bradley, . . .				
J. R. Cleveland, . . .				
C. B. Cleveland, . . .				
Fred Weeks, . . .				
F. C. Vincent, . . .				
Herbert Crocker, . . .				
A. B. Lewis, . . .				
Chas. B. Cleveland, . . .				

Lobster Returns—Concluded.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
G. A. Gifford, . . . Chas. W. Hammond, . . T. J. Brightman, . . .	Westport, . . .	79	2,697	350
John Wadsworth, . . . J. B. Wyman, . . .				
M. L. Lawson, . . . J. K. P. Purdum, . . . F. R. Gifford, . . . P. W. Wainswright, . . Lewis Phillips, . . . J. J. Veeder, . . . P. M. Stewart, . . . Alfred Nickerson, . . . Thomas Hineckley, . . . Frank Peterson, . . . O. C. Grinnell, . . . E. F. Donnelly, . . . H. A. Hilton, . . . H. P. Phinney, . . . Clarence Ramsdell, . . L. L. Adams, . . . N. C. Phinney, . . . A. E. Bragg, . . . J. F. Cook, . . .	Winthrop, . . .	94	8,761	161
Herbert Lovell, . . .				
Totals (men, 453), . . .				
	Wood's Holl, . . .	376	22,515	2,953
	Yarmouth, . . .	26	851	76
		22,041	995,396	30,470

Comparisons of Returns of Lobster Fisheries.

YEAR.	Number of Men.	Number of Traps.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Increase of 1894 over 1893, . . .	54	3,291	—	2,156
Decrease of 1894 below 1893, . . .	—	—	52,898	—
Increase of 1895 over 1894, . . .	—	—	—	—
Decrease of 1895 below 1894, . . .	48	3,098	140,469	554
Increase of 1896 over 1895, . . .	76	4,836	39,031	—
Decrease of 1896 below 1895, . . .	—	—	—	3,873

GILL AND SWEEP NETS—1896.

GILL AND SWEEP NETS.

1896.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.
F. G. Kelley,	Barnstable,	-	-	109,600	-	-
Alexander Sargent,	Bay View,	1	-	-	199,625	-
Thomas James,	Berkley,	-	215	110,000	-	-
J. N. Winslow,	Brewster,	-	-	180,857	11,200	-
Niles Nelson,	Centreville,	-	-	-	-	-
W. C. Kelley,	Chiltonville,	-	-	40,720	-	-
C. E. Bearse,	Chilmark,	-	-	-	-	-
A. S. Hadaway,	Cohasset,	-	38	-	30	-
W. S. Mayhew & Bros.,						
Robert Ainsley,						
Geo. W. Crowell,						
A. W. Smith,						
Geo. W. Bloomer,						
E. B. Ryder,						
E. S. Gould,						
W. H. Patterson,						
W. F. Hitchings,						
J. F. Eldridge,						
R. F. Nickerson,						
C. D. Hammond,						
C. F. Eldridge,						
R. T. Bearse,	Chatham,	-	-	168	-	7
J. S. Ryder,						
C. C. Nickerson,						
W. A. Bloomer,						
Geo. W. Eldridge,						
H. F. Gould,						
J. D. Bloomer,						
A. S. Hammond,						
Wm. H. Gould,						
Seymour Patterson,						
O. C. Eldridge,						
G. W. Gould,						
E. D. Perry,						
I. A. Hardy,	Dighton,	-	1,872	792,149	-	-
C. N. Simmons,	South Duxbury,	-	-	-	-	-
Isaac Symmes,						
A. P. Howes & Co.,						
Geo. E. Hall,						
G. G. Snow,	Dennis,	-	-	-	-	-
F. H. Mayo,						
Nehemiah Edwards,						
J. H. Long,						
W. S. Osborne,	Edgartown,	-	-	241,704	-	-
J. H. Jones,	Falmouth,	-	-	23,150	-	-
Joseph Douglass,						
Thomas Douglass,						
Alfonzo Tarr,	Gloucester,	1	99	2,400	640,220	55,575
B. F. Bowden,						
B. F. Saunders,						
Wm. P. Goodwin,	East Haverhill,	-	7	64	-	-
Edwin Taylor,	Hyannis,	-	-	-	-	-
T. F. Phinney,						
W. A. Nickerson,	Harwich,	-	-	-	2,715	-
B. W. Dove,						
A. W. Riley,						
J. W. Marchant,	Lanesville,	-	-	-	396,059	-
J. J. Woodbury,						
Rufus L. Savery,	Marion,	-	-	169,197	-	-
Jones Bros.,	Manchester,	-	-	-	22,750	-
Charles Lewis,						
R. T. Millett,						
Chas. E. Rogers,						
R. C. Glass,	Marblehead,	1	-	-	22,500	-
S. B. Perkins,						
B. F. Stevens,						

GILL AND SWEEP NETS.

1896.

Striped Bass.	Scup.	Squeteague.	Sea-bass.	Butter fish.	Concho.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	18,799	-	-	20	1,555	20,520	16,000
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	47,100	-	850	240	-	-	-
195	-	11	-	-	45	-	21	2,278	-	-	-	-
-	-	164	-	-	-	-	-	294	-	-	-	264
-	-	-	-	2	-	95	-	-	-	-	-	-
125	-	150	-	81	417	10,808	-	2,461	-	-	-	5,357
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	4,845	-	-	-	-	-	-
44	-	27	-	-	5	15,468	-	1,573	-	-	-	5,410
130	-	-	-	-	-	-	-	-	-	-	-	5,150
-	-	-	-	-	-	13,708	-	-	-	-	1,276	27,514
1	-	-	-	-	-	-	-	-	-	-	-	-
-	-	21	-	-	-	207	-	158	11	-	-	-
-	-	-	-	-	-	1,603	-	-	-	27	-	-
-	-	-	-	-	-	4,102	-	-	-	-	1,865	3,826
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1,253	-	-	-	-	-	1,000
-	-	-	-	1,439	-	5,273	-	-	-	153	-	-

Gill and Sweep Nets—Continued.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.
C. L. Prescott,	Middleboro,	-	-	83,401	-	-
H. E. Dunham,						
M. W. Dunham & Co.,						
A. F. Meiggs,						
Manuel Thomas,						
Leander Small,						
J. R. Silvia,						
E. W. Ramsdell,						
J. H. Eldridge,						
W. I. Fisher,						
C. S. Glidden,	Nantucket,	-	-	114	-	25
G. H. Hamblin,						
H. C. Orpin,						
John Watkins,						
M. I. Francis,						
G. M. Winslow,						
G. E. Thomas,						
A. C. Manter,						
A. H. Adams,						
C. B. Cathcart,						
G. H. Spencer,						
A. H. Small,						
N. L. Thurlow,						
G. G. Short,						
Joseph Thurlow,	Newburyport,	-	-	674,600	4,053,031	92,250
O. A. Caswell & Co.,						
F. C. Hunt,						
Richard Pierce,						
Antoine Gracia,	New Bedford,	-	-	-	-	-
R. W. Cook,						
W. M. Elwell,						
G. H. Hurlburt, Jr.,						
Needham Rogers,						
E. H. Tillson,						
J. C. Lurten,						
Manuel Williams,						
C. H. Emery,						
W. M. Wareham,						
Daniel Williams,						
J. S. Harvender,						
Jonathan Sparrow,						
H. N. Smith,						
R. G. Tarrant,						
Seth Nickerson,						
William Dyer,						
D. L. Smith,						
A. J. Emery,						
A. L. Daggett,						
S. L. Ellis,						
B. R. Kelley,						
J. H. Little,	Provincetown,	-	10,625	223,731	1,981,523	25,146
N. W. Newcomb,						
Joseph Ellis,						
J. S. Smith,						
G. A. Brown,						
George Crosby,						
Jonah Newcomb,						
A. A. Mayo,						
George Lewis,						
S. F. Atwood,						
Samuel Small,						
Boniface Silvey,						
W. C. Snow,						
Frank Days,						
F. N. Days,						
J. D. Smith,						
Reuben Ryder,						
H. L. Mayo,						
Manuel Tarvis, Jr.,						
J. F. Atkins,						
Geo. H. Lewis,						
J. A. Cobb,						

Gill and Sweep Nets — Continued.

Striped Bass.	Scup.	Squeteague.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	-	-	-	-	-	-	-	-
83	242	715	29	24	2,238	6,033	-	48,159	4	-	71	1,339
-	-	-	-	-	-	-	-	-	-	-	-	119,130
-	-	-	-	-	-	-	-	-	8,928	-	-	-
6	-	-	-	749	-	448,200	-	13,358	550	204,983	11,197	11,166

Gill and Sweep Nets — Concluded.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.
M. S. Brown,	Provincetown,	-	10,625	223,731	1,981,523	25,146
J. R. Swartz,						
James Bangs,						
E. W. Smith, Jr.,						
Zephaniah Rich,						
E. Q. Weeks,						
Isaac Tyler,						
R. O. Kelley,						
Henry Atwood,						
Joseph Wolf,						
John Atkins,						
F. N. Atwood,						
Wm. Newcomb,						
J. H. Emery,						
G. N. Freeman,						
J. W. Savage,						
J. H. Fuller,						
J. P. Williams,						
Joseph Patrick,						
Prince Freeman,						
Jesse Ghen,						
Manuel Carter,						
J. E. Weeks,						
L. P. Hatch,						
John Dolan,						
Thomas Lopes,						
E. A. Wheldin,						
Bangs & Lewis,						
Martin Silva,						
G. N. Maker,	Plymouth,	-	-	-	-	-
William Harlow,						
Cornelius Briggs, Jr.,	Raynham,	-	1,682	487,917	-	-
Gustavus King,						
G. B. & E. Williams,	Rockport,	-	-	-	56,812	-
H. P. Macomber,						
Gilbert Rich,	Scituate,	-	-	109	9,909	-
C. W. Gott,						
Geo. T. Edson,	Somerset,	-	-	403	-	-
Robert O'Hearne,						
J. K. Gannett,	Sandwich,	-	-	-	-	-
William Ward,						
James Edson,	Truro,	-	-	-	4,800	-
G. W. Simmons,						
T. W. Luther,	Westport,	-	-	27,851	-	-
J. D. Smith,						
E. W. Haines,	Wellfleet,	-	-	186,500	6,000	-
J. Atwood,						
T. D. Smith,	Yarmouth,	-	-	-	-	-
W. W. Freeman,						
E. D. Doyle,	Totals (206 men),	3	14,538	3,359,635	7,407,174	173,003
C. H. Collins,						
J. T. Stevens,						
Joseph Morris,						
J. C. Myricks,						
M. V. Silva,						
F. D. Grinnell,						
W. M. Soule,						
A. G. Allen,						
I. E. Snell,						
E. P. Cook,						
J. E. Curran,						
W. P. Doane,						
H. F. Atwood,						
Manuel G. Gio,						
Theo Brown,						
Herbert Lovell,						
Roland Kelly,						

Gill and Sweep Nets — Concluded.

Striped Bass.	Seup.	Squeteague.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bat Fish.
6	-	-	-	749	-	448,200	-	13,358	550	204,983	11,197	11,166
-	-	-	-	4	-	243	-	-	-	-	13	217
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1,180	-	-	-	-	-	2,800
-	44	-	-	5	-	1,776	-	-	-	-	85	2,220
22	-	-	-	237	-	-	-	-	158	-	-	250,375
-	-	-	-	-	-	1,312	-	-	-	-	-	-
-	-	-	-	30	-	3,516	-	25	-	-	2,094	340
-	-	-	-	-	-	-	-	-	-	-	-	6,477
-	632	-	-	-	-	12,627	-	-	971	-	-	4,365
8	-	-	-	-	-	7,495	-	-	-	-	-	-
615	918	1,087	29	2,521	2,695	601,298	21	68,989	10,882	207,078	36,424	460,873

POUNDS AND WEIRS.

1896.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.
T. L. Mayo, . . . { W. W. Hallett, . . . }	Barnstable, . .	40	143	1,343	-	450	3
E. P. Gibbs,	Bourne,	-	155	-	57,750	-	-
T. Ellis & Son, . . . { J. Eldridge & Son, . . . { F. D. Atwood, . . . } Fred Young, . . . }	Brewster, . . .	-	1,432	110,158	79,570	232	130
W. F. Flanders, . . . { Daniel Vincent, . . . { J. Look & Co., . . . { F. P. Tillton, . . . { D. W. West, . . . { G. W. Manter, . . . }	Chilmark, . . .	31	358	18,877	5,612	4,872	49
Reed Loveland & Co., } N. B. Nickerson, . . . } B. L. Jones, . . . } S. W. Gould, . . . }	Chatham, . . .	-	1,909	83,331	185,950	7,891	14
Eilert Wefer, { Z. H. Baker, { William Crowell, . . . { A. T. Chase, { Thatcher Kelly, . . . }	Dennis,	-	646	178,406	141,436	10,569	6
E. D. Howland, . . . { Waite & Smith, . . . { George Priaulx, . . . { Nicholas Priaulx, . . . { William T. Dunn, . . . { Antone Anderson, . . . { G. A. Snell & Co., . . . { Snell & Butts, . . . { J. A. Manchester, . . . { Tallman & Gifford, . . . { E. H. Smith, { H. P. Dunn, { W. S. Matthews, . . . { J. F. Crapo, { B. T. Smith & Co., . . . }	Dartmouth, . .	-	522	363,888	6,580	226,279	453
F. W. Smith, { W. H. Nickerson, . . . { A. K. Higgins, . . . }	Eastham, . . .	-	5	16,794	150,075	-	6
C. B. Coombs, { John Manley, { A. B. Veeder & Co., . . . { H. J. Allen, { Wm. Shephard, { Church & Keeney, . . . { P. B. Davis, { H. W. Daggett, . . . { Isaiah Spindell, . . . }	Gosnold,	-	402	181,310	-	1,273	68
B. Luce & Co., { L. L. Vanderhoop, . . . { W. L. Pease & Co., . . . }	Gay Head, . . .	-	18	22	1,600	92	1

POUNDS AND WEIRS.

1896.

Scup.	Squeteague.	King fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish†
4,372	62	25	-	1,037	23	109,702	-	3,915	129	651	23,200	-
128	5	-	2	4,308	-	89,399	-	-	680	38	88,400	5,309
25	59	-	1	2,394	5	103,136	-	209	1,207	7,933	4,675	10,222
240,231	38,905	36	1,228	29,752	2,370	87,662	3	123	278	5,916	269,400	22,407
276,713	76	62	341	16,369	3	15,719	-	23	173	4,623	227,339	277,609
113,449	525	117	-	699	344	163,668	7	180	731	4,553	210,582	1,155
563,555	99,987	169	113	399,742	81	73,317	21	688	19,402	63,502	247,272	45,342
-	298	-	-	29	-	5,432	-	3,379	2,351	747	14,160	-
1,785,375	51,596	5	30,992	310,217	724	22,569	2	204	3,471	32,584	85,193	462,012
246,100	43,660	4	1,751	3,355	194	36,381	-	5	18	3,341	10,775	-

Pounds and Weirs — Concluded.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.
B. H. Hodgkins, . . . } A. E. Douglass, . . . } G. M. Douglass, . . . } H. W. Nelson, . . . } C. E. Nason, . . . } F. T. Lane, . . . }	Gloucester, .	2	886	9,900	249,310	31,240	-
D. F. Weeks & Co., . . } E. E. Robbins, . . . } N. B. Smith, . . . }	Harwich, .	-	103	6,062	14,200	2,002	96
F. A. Tarr,	Magnolia, .	-	-	-	209,900	-	-
E. W. Heath, . . . } William Elwell, . . . }	Manchester, .	-	40	92,927	936,412	242	-
T. L. Mayo,	Nahant, .	-	764	4,640	342,860	2,780	-
R. E. Cornwell, . . . } T. K. Paine, . . . } H. J. Lewis, . . . } J. A. Lewis, . . . } Perez Bangs, . . . } I. B. Lewis, . . . } I. W. Lewis, . . . }	Provincetown,	-	92	56,534	2,665,142	1,398	15
B. B. Baker,	Plymouth, .	-	-	-	-	-	-
A. L. Smith,	Revere, .	-	10	-	403,000	500	-
Isaiah Spindell, . . . } G. A. Phinney, . . . }	Sagamore, .	-	44	-	7,400	500	-
Robert Perry, . . . } Isaiah Spindell & Co., }	Sandwich, .	-	70	-	3,200	-	-
C. B. Jones,	Swampscott, .	-	-	-	223,850	-	-
G. W. Manter, . . . } H. B. Davis & Co., . } Jason Luce & Co., . } O. S. Daggett, . . . } D. D. Look, . . . } H. N. Luce, . . . } Edward Cottle, . . . }	Tisbury, .	-	320	21,535	12,232	3,099	240
P. L. Paine, } D. B. Rich, } W. F. Baker, } Atkins, Hughes & Co., } D. Blatchford, . . . } S. B. Atwood, . . . } N. B. Rich, } N. O. Atwood, . . . } R. A. Rich, }	Truro, .	1	2,659	61,967	5,262,379	254,112	5
J. O. Norton, } J. R. Walker, } W. D. Cleveland, . . }	Vineyard Haven,	-	32	26,676	5,800	12,140	12
N. B. Rich,	Wellfleet, .	-	-	-	99,400	2,000	-
P. M. Stewart,	Wood's Holl, .	-	6	585	23	2,070	-
S. L. Robbins,	Yarmouth, .	-	-	34,520	-	-	-
Totals (101 men), . . .	. . . . .	74	10,616	1,269,475	11,063,651	563,241	1,098

Pounds and Weirs—Concluded.

Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	3,945	-	7,967	-	1	2	342	11,850	304,502
4,988	3,268	7	3	15,701	403	2,986	5	415	332	1,303	173,500	2,741
-	-	-	-	-	-	5,041	-	-	-	-	12,200	-
91	-	-	-	98	-	9,816	-	-	52	868	5,520	4,100
70	1,000	-	5	272	-	3,010	-	-	68	783	4,450	-
101	160	-	80	1,476	2	54,091	2	5	33	19,075	782,770	1,369,251
-	-	-	-	1	-	14,946	-	-	40	24	-	-
-	-	-	-	30	-	6,492	-	-	-	-	4,500	20
54	28	-	-	3	-	10,105	-	18	1,168	-	652,800	-
-	-	-	-	-	-	11,729	-	-	111	-	155,450	-
-	-	-	-	305	-	4,210	-	-	-	-	-	7,750
147,725	23,985	252	758	10,895	4,260	43,578	1	655	645	4,308	93,250	1,243
144	3,285	29	-	15,314	7	848,675	35	72	386	40,617	699,224	517,375
262,571	1,091	1	212	12,783	1,854	25,966	1	79	235	2,506	20,550	117,005
-	-	-	-	3,637	-	7,440	-	-	-	742	2,200	4,000
17,457	1,355	9	44	1,638	45	2,109	-	24	56	305	861	102
-	-	-	-	-	-	-	-	-	1	46	-	-
3,663,149	269,345	716	35,530	834,000	10,315	1,770,146	77	9,995	31,569	194,804	3,800,121	3,152,145

Comparison of Returns for the Years 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895 and 1896.

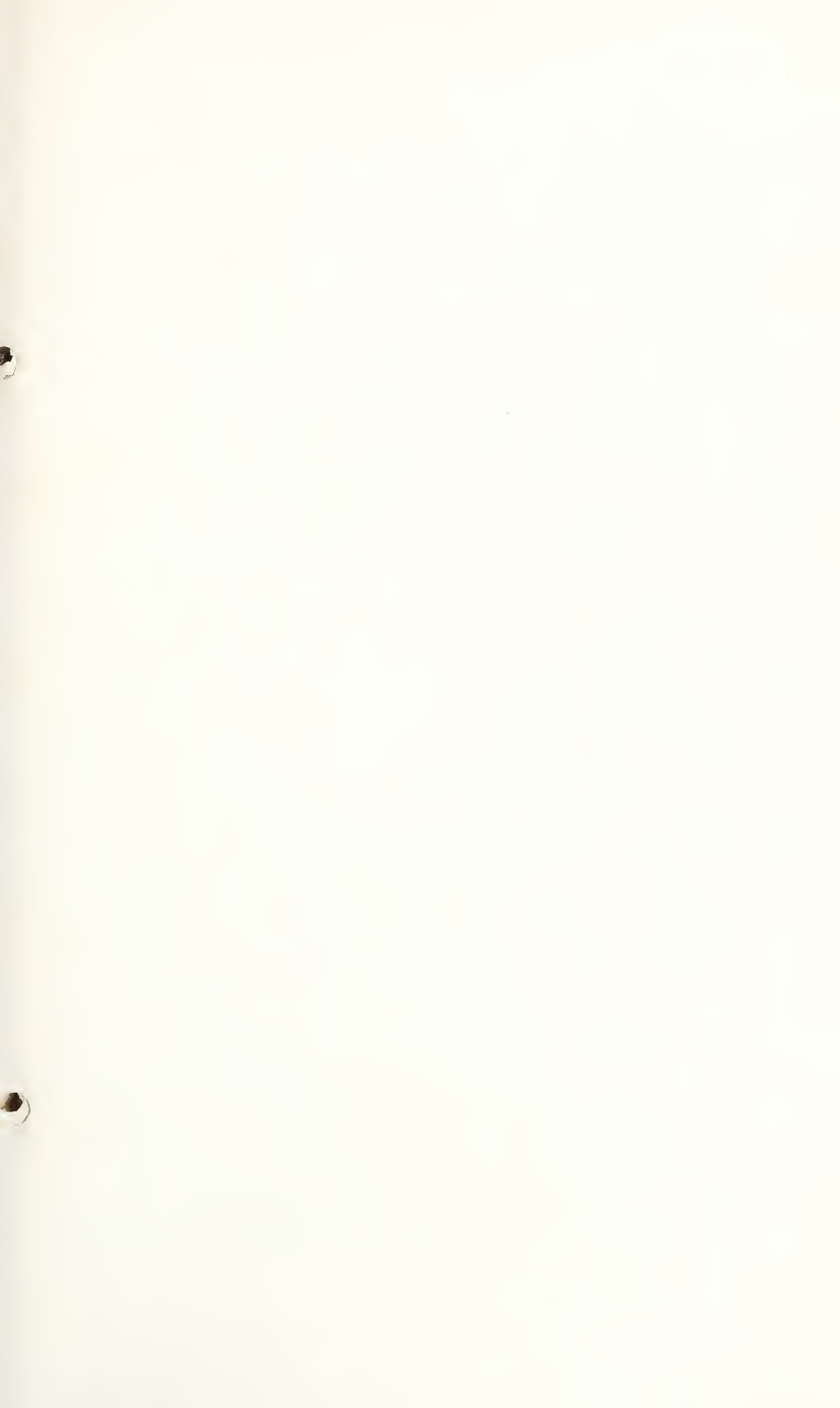
YEAR.	FISHERIES.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Soup.	Squeeteague.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.	No.														
1882,	Pounds and weights,	85	27,769	1,420,919	1,201,449	8,102	4,219	1,991,480	67,266	3,289,512	310	133,805	40,512	114,843	4,016	-
1883,	"	87	5,994	1,250,263	339,116	4,048,022	2,876	1,848,583	92,671	4,756,490	246	60,182	35,481	184,387	5,361	-
1884,	"	93	5,392	715,986	2,808,203	398,381	6,950	1,641,129	74,826	1,440,486	99	109,694	23,929	288,930	33,980	-
1885,	"	80	18,088	1,066,148	6,561,619	6,255	1,365	1,240,680	17,746	2,613,190	24	32,575	47,231	317,982	7,741	128,698
1886,	"	80	15,874	1,012,802	48,910	4,625	2,412	1,966,243	3,226	1,290,466	20	17,315	47,490	261,595	11,570	572,334
1887,	"	62	14,044	1,453,820	1,713,846	127,951	1,233	2,153,504	15,742	1,069,609	109	44,204	89,075	304,492	7,615	812,810
1888,	"	83	50,057	1,054,607	6,665,698	1,202,777	2,455	1,448,451	127,602	2,877,768	115	38,376	63,214	358,917	10,805	2,716,892
1889,	"	103	25,691	1,417,950	17,000,308	1,203,669	4,924	1,331,673	36,043	825,152	524	17,287	69,719	289,993	20,163	1,859,924
1890,	"	87	26,587	1,198,561	4,432,690	2,911,970	5,302	354,423	43,988	1,297,264	1,242	60,633	25,637	210,476	9,180	958,872
1891,	"	87	26,587	1,039,107	10,643,504	1,976,856	1,413	3,160,446	98,749	3,045,814	323	28,355	33,476	389,416	17,511	569,794
1892,	"	83	14,658	1,031,160	15,739,505	124,917	1,410	2,421,985	70,085	4,706,233	47	16,296	45,881	346,772	8,069	1,588,890
1893,	"	99	13,440	816,841	16,895,378	1,615,025	561	2,216,406	304,896	2,283,685	2,011	15,842	34,894	284,122	2,643,123	1,419,042
1894,	"	105	6,754	1,378,703	15,361,317	1,152,174	1,849	394,224	300,875	4,127,338	269	14,799	28,715	195,643	2,086,309	1,242,945
1895,	"	102	14,823	1,000,958	22,182,517	1,052,983	2,465	1,464,697	115,331	786,987	68	26,024	433,267	356,933	3,006,544	4,209,153
1896,	"	101	10,616	1,269,475	11,063,681	563,241	1,098	3,663,149	269,345	1,770,146	77	9,995	31,569	194,804	3,800,121	4,652,706
1888,	Traps, fykes and irregular returns,	8	-	5,150	252,685	7,750	-	-	-	288,466	-	-	-	3,123	3,544	-
1889,	Traps, fykes and irregular returns,	15	2,994	89,516	1,212,942	184,239	64	86	54	64,938	1	2,690	339	2,246	2,060	76,073
1892,	Gill nets and sea seines,	133	1,738	424,630	310,611	633	1,427	99,046	4,205	587,087	87	191,668	6,245	33,487	3,033	-
1893,	"	112	26	41,996	79,689	987,627	838	6,254	1,102	392,535	4	131,815	966	12,681	1,755	-
1884,	"	85	6,544	67,312	541,689	1,596	632	7,855	3,254	216,829	6	136,068	1,578	19,031	2,426	-
1885,	"	78	444	117,674	827,151	9,546	601	26,864	1,656	183,156	1	101,371	2,333	30,948	967	5,454
1886,	"	49	22	397,727	151,782	311	1,324	13,019	42	75,463	9	32,343	1,039	14,592	21,670	17,326
1887,	"	35	801	347,109	779,211	57	601	676	2,586	177,401	3	22,018	1,457	14,206	30,416	4,708
1888,	"	142	92,010	465,934	734,374	94,310	1,349	7,704	2,027	633,627	2,172	199,546	1,314	80,738	18,701	52,049
1889,	"	208	4,533	401,445	337,054	202,094	1,421	4,062	4,545	271,017	157	55,718	2,576	35,475	199,360	80,008
1890,	"	183	1,448	174,213	686,948	239,474	1,980	2,289	1,141	208,863	1,488	181,401	754	29,950	81,979	94,448
1891,	"	94	8,308	161,363	315,611	43,624	229	489	535	163,750	89	55,254	80	26,824	10,336	24,324
1892,	"	91	214	444,924	967,567	1,827	422	1,938	260	688,119	1	48,100	59	75,614	14,220	23,711
1893,	"	121	910	291,481	1,120,514	52,495	1	141	1,391	301,368	71	56,381	75	66,377	382	106,561

Comparison of Returns for the Years 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895 and 1896—Concluded.

Year.	Fisheries.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.	No.														
1882.	Other fresh-water seines.	25	897	1,558,659												
1883.	"	23	391	1,762,950			234									
1884.	"	13	22	610,847			1,072									
1885.	"	13	3	1,296,449			897									
1886.	"	7	300	797,365												
1887.	"	5		454,409											25,275	
1888.	"	19	6	1,026,042			4							1,053	11,520	
1889.	"	8		513,001												
1890.	"	6		738,310												
1891.	"	9		1,251,994												
1892.	"	5		794,936												
1893.	"	5		545,613												
1894.	"	9	7	1,063,947												
1895.	"	5		491,084												
1896.	"	6		709,774												
1882.	Total returns.	261	44,734	4,446,280	1,512,000	8,735	5,929	2,090,526	71,471	3,876,599	397	325,473	46,757	148,330	7,049	
1883.	"	239	15,160	4,178,682	4,185,605	4,986,649	5,080	1,854,837	93,773	5,149,025	250	191,997	36,907	197,068	7,116	
1884.	"	205	17,699	2,353,781	3,347,892	309,907	7,882	1,618,984	78,080	1,657,315	105	245,762	30,507	307,971	36,406	
1885.	"	184	25,347	3,747,750	6,546,770	15,801	1,881	1,297,484	19,402	2,826,346	25	133,946	47,494	348,030	8,708	134,152
1886.	"	124	19,466	3,183,741	1,520,466	49,221	3,936	1,979,262	3,268	1,395,350	29	55,031	48,678	276,187	58,872	590,659
1887.	"	112	19,292	3,108,642	2,345,632	97,510	1,833	2,144,973	18,357	1,057,565	112	66,422	80,065	320,220	50,071	818,639
1888.	"	354	149,200	3,767,929	7,669,493	1,556,036	3,275	1,672,610	129,850	3,801,393	2,489	240,374	70,523	432,710	40,634	2,875,420
1889.	"	352	40,461	4,026,352	6,414	4,326,352	6,414	1,335,821	40,642	1,161,107	694	75,695	72,634	327,984	921,583	2,015,993
1890.	"	291	29,303	3,093,920	5,482,120	6,931,804	7,282	336,712	45,130	1,507,617	2,730	242,034	26,391	240,920	102,789	1,112,320
1891.	"	292	37,546	4,954,822	11,108,745	4,600,052	1,642	3,100,355	99,284	3,263,564	412	83,669	33,436	416,240	83,977	694,118
1892.	"	193	16,928	3,173,925	17,241,072	126,744	2,273	2,423,923	70,345	5,394,362	48	64,396	46,940	423,541	38,194	1,620,997
1893.	"	235	18,474	4,165,576	19,760,292	4,277,320	562	2,216,547	306,287	2,585,086	2,082	72,223	34,969	350,749	2,643,605	1,968,571
1894.	"	309	12,684	5,693,300	16,321,847	1,652,078	2,207	394,237	302,525	4,893,911	1,451	100,141	28,918	256,881	2,094,185	8,914,569
1895.	"	265	36,830	2,805,594	24,363,699	1,331,370	2,679	1,465,987	147,454	1,140,756	61	49,573	436,090	463,503	3,075,426	13,756,795
1896.	"	307	25,154	4,629,110	18,470,855	736,244	1,713	3,664,067	270,432	2,371,444	98	78,984	42,451	401,882	3,836,545	4,498,824
	Increase of 1885 over 1884.	-	7,648	1,393,969	3,198,878	-	-	-	-	1,169,031	-	-	16,957	40,059	-	-
	Decrease of 1885 below 1884.	21	-	-	-	294,106	5,701	381,500	58,678	-	80	111,816	-	-	27,698	-

Increase of 1886 over 1885, Decrease of 1886 below 1885,	60	5,881	564,009	5,026,304	33,420	2,005	711,778	16,134	1,430,496	4	78,915	1,214	71,843	50,104	456,507
Increase of 1887 over 1886, Decrease of 1887 below 1886,	12	174	75,099	825,166	48,289	2,103	165,711	15,089	338,285	83	11,391	40,387	44,033	8,801	227,980
Increase of 1888 over 1887, Decrease of 1888 below 1887,	152	129,908	642,287	5,323,861	1,438,526	1,442	472,363	111,493	2,743,828	2,377	174,452	18,542	112,490	9,437	2,556,781
Increase of 1889 over 1888, Decrease of 1889 below 1888,	88	108,739	150,000	12,249,666	2,790,316	3,139	336,789	89,208	2,640,286	1,795	165,179	2,111	104,726	180,949	859,427
Increase of 1890 over 1889, Decrease of 1890 below 1889,	61	11,168	579,009	14,437,039	2,605,452	868	979,109	4,488	346,510	2,036	166,339	46,243	87,064	118,794	903,673
Increase of 1891 over 1890, Decrease of 1891 below 1890,	89	2,492	1,915,902	5,626,625	2,431,752	5,640	2,804,223	53,754	1,701,947	2,318	158,425	7,165	175,320	18,812	518,202
Increase of 1892 over 1891, Decrease of 1892 below 1891,	9	20,418	1,774,899	6,132,327	4,373,252	631	737,012	28,939	2,184,788	364	19,212	12,384	7,301	45,783	1,026,879
Increase of 1893 over 1892, Decrease of 1893 below 1892,	42	1,546	975,653	2,519,220	4,150,776	1,711	207,376	235,942	2,809,266	2,034	7,827	10,971	72,792	297,805	22,426
Increase of 1894 over 1893, Decrease of 1894 below 1893,	74	5,790	1,537,724	3,438,445	2,625,442	1,645	1,822,310	3,962	2,308,825	631	27,918	6,051	93,868	549,320	7,115,998
Increase of 1895 over 1894, Decrease of 1895 below 1894,	44	24,146	2,887,706	8,041,852	320,708	472	1,071,750	154,871	3,753,155	1,390	50,508	407,172	206,622	981,241	4,842,226
Increase of 1896 over 1895, Decrease of 1896 below 1895,	42	11,676	1,823,516	5,892,844	595,126	966	2,198,080	122,978	1,230,688	37	29,411	393,539	61,621	761,119	9,257,971

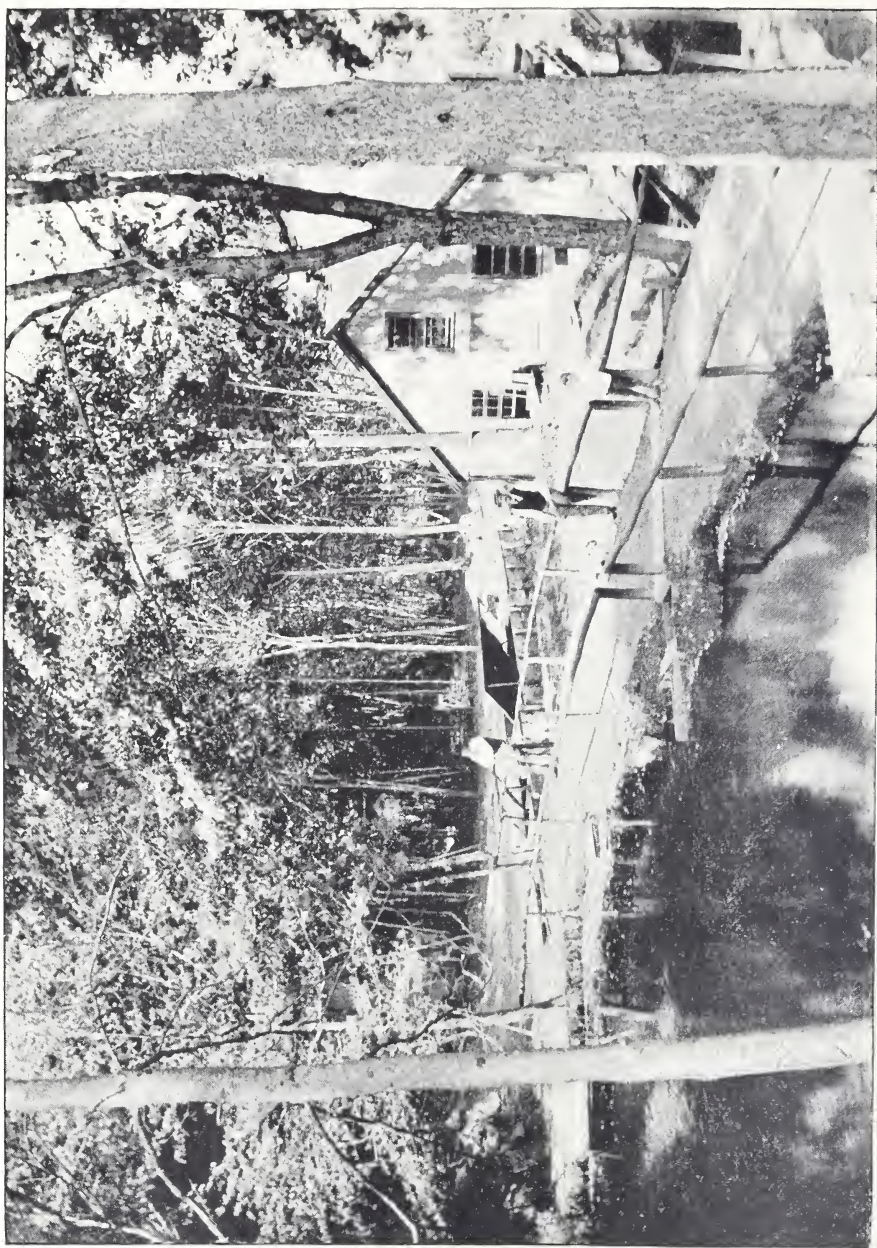






SUPERINTENDENT'S DWELLING — Sutton, Mass.





STATE HATCHERY — Sutton, Mass.

REPORT OF THE COMMISSIONERS

ON

INLAND FISHERIES AND GAME

FOR THE

YEAR ENDING DECEMBER 31, 1897.

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Commonwealth of Massachusetts.

To His Excellency the Governor and Honorable Council.

The Commissioners on Inland Fisheries and Game respectfully present their thirty-second annual report.

Under chapter 208, Resolves of 1897, eleven ponds were stocked with white perch. These were all the applications which had been received up to the time of delivery; several have come in since, which have been put on file for next year's distribution. We would remind all persons interested in stocking ponds that applications should be in and on file before October 1.

The hatching and distribution of a large number of trout was successfully carried out. A detailed account of the work will be found in the Appendix.

The hatchery at Sutton requires changes in the construction of the pond where the breeding fish are kept. The cutting off of the heavy timber and the subsequent fire which swept over the ground adjacent to the pond and stream that supplies it have more or less affected the water both in purity and temperature.

The Hadley hatchery will require some improvements in the ponds for breeding and rearing trout.

The new Winchester hatchery will be sufficiently complete to receive its quota of eggs by the last of December. The building has been erected on the western edge of the Middlesex Fells, in the town of Winchester. As this building is on State land, near the entrance to the park, we have endeavored to make it worthy the location. It will be open to the public a part of the time.

For part payment on the land, for grading and for completing the hatching troughs and screens, a small additional appropriation will be required.

FISHWAYS.

Cohasset.

Early in the spring we were requested by the selectmen of Cohasset to cause fishways to be built over the dams on a stream in that town. A careful inspection was made and plans and specifications were furnished the owners of said dams, with orders to complete the work before the close of the season. On visiting the place this fall, it was found that nothing had been done, and the owners claimed that they were acting with the consent of the selectmen, with the expectation that the town, at its next meeting, would contribute a portion of the expense of building the fishways.

Middleborough.

We regret to say that the fishway over the so-called Sherman's dam is still a source of annoyance to the fishermen on the Taunton River, owing to the fact that the property is heavily mortgaged, and to the apparent irresponsibility of parties holding the right of redemption. The town of Middleborough derives quite a sum annually from these fisheries, and also owns seventy-five horse-power of the water privilege, yet refuses to do anything to assist in getting the fish over the dam.

The property has now been sold at mortgagee's sale, thereby perfecting the title, and legal notice has been served on the present owners to put the fishway in good order at once, so that fish can pass freely over the dam; and in case of non-compliance the Attorney-General has been asked to enter suit against them.

Lawrence Fishway.

Owing to the remarkably high water in the Merrimac River, nothing could be done toward putting this fishway in repair until about the first of August. As soon as the water was low enough to see what was needed, we consulted with Mr. Mills, chief engineer of the Essex Company, and the question of repairing the old fishway was freely discussed. It was finally decided to build a new fishway on the opposite side of the river, where it would be less affected by the spring freshets. A solid stone foundation has been built, and doubtless the

whole structure will be completed before the fish are ready to pass up in spring.

SHORE FISHERIES.

The weir and net fishermen have not had a successful season, financially, owing to the continued scarcity of mackerel along the coast. Other edible fish helped to pay the expenses, but most of the profits of the fishing season have been in the past realized from mackerel catch. This applies not only to the shore, but to the deep-sea fisheries.

Years ago, as is well known, our markets were fully supplied with fresh and salt fish, these fisheries not only supplying wholesome food at a price within the reach of all, but giving employment to thousands of good citizens of this Commonwealth and New England. To-day it is changed; fresh mackerel are a luxury, as the records of the past season will show. The combined catch of all of the fisheries has not been able to supply the demand for fresh mackerel, and the salt-fish trade has been principally supplied from foreign markets.

The cause is apparent to most fishermen who have followed its decline during the past twelve years. Only a few years after the hook and line fishing was abandoned and seining taken up by the New England fleet were the changed conditions noticed. In 1884 there was an unprecedented catch, but since then the decline in the business has continued with little variation.

In the former days, when the New England fleet used only hook and line, and commenced the season by going south to the capes of the Delaware or New Jersey coast the last of April or the first of May, each vessel carried a supply of bait or "tollings," and hundreds of barrels were thrown into the sea daily as they followed the coast line north to the Bay of Fundy and the St. Lawrence, to the 1st of September, when the fish again moved south; and the tolling used by the fishermen tended to keep the fish near the coast, and the shore fisheries profited as well by this mode of fishing as the mackerel fleet.

It was a common sight during the fall months, when the fish were moving south, to see three or four hundred sail of fishermen in Massachusetts bay, — the finest fleet in the world, and principally owned and manned by sons of this Commonwealth.

It was truly a nursery for the merchant marine of our country. Now this is all changed. Our once beautiful fleets, the pride of the country, manned by our citizens, have gone, in too many instances never to return; and with the decline of the shore fisheries the hardy sons have turned their attention to other occupations, which have called them away from the shores of the old Bay State that they loved so well, and they are scattered through the various cities and towns of our sister States, where by their early training they are able to cope with the business of to-day.

This is not a pleasant bit of history, but it is nevertheless true.

It would appear that the United States government was in a position to make a thorough investigation of the habits of the mackerel, which are very little known at the present time, and assist, through actual demonstrations, to restore in part this valuable fishery, which was of such material benefit to New England and the whole country.

LOBSTERS.

We present below the results of the efforts of the United States Commission in hatching lobsters on the coast of Massachusetts. We have heretofore given our views, based on our own investigations, as to the utility of trying to maintain the lobster fisheries by this process; but, whether we are right or wrong, too much dependence should not be placed on artificial propagation.

In all cases where the maintenance of any fishery is of importance, the fact that the young fish should be allowed to develop sufficiently to deposit eggs, at least once, should not be disregarded. While this is true in regard to the larger migratory fish, it is especially so as to the lobster with its limited range.

The present legal length of ten and one-half inches is below the length of the average spawning lobster, and, despite all our efforts to suppress the illegal traffic, a very large number of small lobsters are annually destroyed. During the last eight years the lobster fisheries have steadily decreased. In 1890 the catch of egg-bearing lobsters was 70,909; this year the returns so far as received indicate about 20,000, and of all others

a decrease of 10 per cent. below last year, and 45 per cent. below 1890. This is not a sudden decline, but a steady one, showing that if something is not done to preserve this valuable crustacean its end is near.

As a means toward the better protection and more ready enforcement of the law, we recommend the accompanying bill : —

SECTION 1. It shall be the duty of the commissioners on inland fisheries and game to issue a license to any citizen of this Commonwealth who may apply in writing therefor, to set and keep lobster pots in any waters of the Commonwealth designated in said license, for the term of three years from the date thereof ; and whoever without such license sets or keeps any lobster pot or pots, or takes therefrom any lobster or lobsters, shall forfeit twenty dollars for each of such pots and one dollar for each lobster so taken.

SECT. 2. The license of any person who shall be convicted of the violation of any provision of the statutes relating to lobsters may be revoked by said commissioners, who shall notify such person of its revocation, and another license shall not be issued to him within one year from the date of the revocation.

SECT. 3. Any person to whom a license has been issued shall cause all lobster pots which he sets, and the buoys thereto attached, to be marked with his name and the number of his license, and any lobster pots which are set and not marked may be seized and destroyed by said commissioners, their deputies or by any member of the district police.

U. S. COMMISSION OF FISH AND FISHERIES,
WOOD'S HOLE, MASS., Oct. 13, 1897.

Hon. E. A. BRACKETT, *Chairman Board of Commissioners of Fish and Game, Winchester, Mass.*

DEAR SIR :—In accordance with the terms of my appointment as deputy fish and game warden, I beg to submit the following report of the work done in propagating lobsters at this station. During October, 1896, it was decided to try the experiment of collecting a few lobster eggs in the fall and holding and caring for them during the winter, instead of waiting until April before beginning our collections, as is usual. If the eggs could be taken then and successfully carried through the winter, many millions that are now lost could be saved. The first eggs were received October 26, and from then until December 12, 97 lobsters, which yielded 887,000 eggs, were received from local fishermen. These eggs developed nicely and with very small loss up to the following April, after which the loss was quite heavy. In all, 385,000 fry were hatched from them. I deem it

important to state that, for about eight or nine weeks during January, February and March, and while the natural water temperature was between 30° and 33° F., the temperature of the water in which the eggs was carried was raised by artificial means, and kept between 35° and 37°. This unseasonably high temperature may have been the cause of the unusually heavy loss. The collections were again begun early in April, the first eggs being received on the 7th, and continued until June 26, when the last were received from Massachusetts waters. During this time, 3,370 lobsters, which yielded 40,348,000 eggs, were received. These lobsters were obtained from fishermen operating in Vineyard Sound and Buzzard's Bay, and also from those fishing between Green River and Ship Pond, including Duxbury and Plymouth bays. Collections were also made from Block Island, R. I., and from Noank and Stonington, Conn. In all, 74,152,000 eggs were received at the station, and from them 64,419,000 fry were hatched and planted. The fry have been widely distributed, plants having been made at numerous points in this harbor and on both sides of Vineyard Sound and Buzzard's Bay, and also at Provincetown, Plymouth and Sagamore in this State, and off Newport, R. I., and Noank and Stonington, Conn.

Respectfully submitted,

E. R. LOCKE,
Superintendent.

U. S. COMMISSION OF FISH AND FISHERIES,
GLOUCESTER, MASS., Nov. 22, 1897.

MR. E. A. BRACKETT, *Chairman Board of Commissioners of Fish and Game.*

DEAR SIR:—I herewith submit a summary of the lobster work at Gloucester, Mass., station during the past season.

Collections of egg-bearing lobsters were made from Essex to Cohasset, Mass., the larger part of them being received from Boston and vicinity. The first eggs were received April 19, and from then till July 12, when the last eggs were received, 3,052 lobsters were collected, which yielded 30,194,000 eggs. From these were hatched 26,424,000 fry, which were distributed in Massachusetts waters, from Rockport to Boston. Besides the above, 24,338,000 eggs were received from 2,158 lobsters collected in Maine and New Hampshire waters. From these were hatched 21,445,000 fry, 9,780,000 of which were planted in Massachusetts waters.

Very respectfully,

C. G. CORLISS,
Superintendent.

MONGOLIAN PHEASANTS.

The rearing and distribution of these birds during the past year has been fairly successful, the only drawback being the unprecedented wet and cold weather during the early part of the breeding season, which proved fatal not only to the early broods of pheasants, but all ground birds appear to have suffered from it.

As the Mongolian pheasants have come to stay, whatever information may tend to facilitate their introduction is important. We have, therefore, spared neither time nor expense to find the simplest and most effective way of breeding them.

As has been heretofore stated, great numbers of English or ordinary ring-neck pheasants are annually bred in Europe. According to the best publications on this subject, and confirmed by breeders with whom we have personally conferred, the young of this variety are fed on hard-boiled eggs or custard mixed more or less with chopped vegetables. A well-known English breeder states that he raises from forty to sixty per cent. Not only in our own experience, but in that of all others of whom we know who have attempted to raise the Mongolian pheasant, this food has proved a failure, and it was not until the introduction of maggots as food that they were successfully bred in confinement. So pronounced is this, that it is only necessary to know what a breeder is feeding his chicks to know which variety he has.

Not only is the feeding of larvæ necessary, but it is much cheaper than the eggs and custard. Six sheep's plucks a day, costing from three to five cents each (according to locality), will provide food for three hundred chicks, until old enough to feed on scalded grain.

Larvæ for Food.

It is necessary, throughout the breeding season, to provide a good stock of breeding flies, for they lay their eggs and die. If their increase is not provided for, the whole neighborhood will become exhausted of them. The varieties we most encourage are the blue-bottle fly and the flesh fly, the latter being the most desirable. In the beginning we had only the blue-

bottle; now more than one-third are the flesh fly. As the larvæ of the latter are much larger, it is easy to separate them with suitable screens, allow them to change into the pupa state and hatch as many as may be required. Six plucks will give from six to eight quarts of maggots. Placed in pans in a refrigerator, at from 40° to 45°, development is arrested and they may be kept for weeks. We usually have from one to two bushels on hand, to provide against stormy or cold weather when flies are not out.

In our early experiments we found the stench from decaying meat almost unbearable, and we were liable to be complained of as a nuisance. We tried deodorizing, with no effect. Either the plant must be abandoned or moved to some other locality (neither of which could be done, and carry out the contemplated work), or some other method of raising larvæ must be devised. We were therefore compelled to a scientific study of the nature and habits of the fly. It was soon discovered that flies do not lay their eggs on tainted meat. They are clean feeders from choice, and thrive better on fresh meat. Giving the flies fresh meat, and feeding the maggots on thinly sliced fresh meat twice a day, giving them no more than they will eat up clean, the disagreeable odor can be almost entirely overcome. Without entering further into detail of this laboratory, which has attracted the attention of several scientists, we append the statement of Mr. Kirkland, as showing the possible results of such an establishment.

STATE BOARD OF AGRICULTURE.

COMMITTEE ON THE GYPSY MOTH, INSECTS AND BIRDS,
OFFICE OF THE DIRECTOR OF FIELD WORK,
17 RUSSELL STREET, MALDEN, Sept. 20, 1897.

HON. E. A. BRACKETT, *Chairman Fish and Game Commission, Winchester, Mass.*

MY DEAR SIR:—In fulfilment of my promise to furnish you some notes on the common blow-flies, I send you the following:—

The species which furnish the greater part of the insect food of your birds are the blue-bottle fly (*Lucilia cesar*), the flesh fly (*Sarcophaga carnaria*), and in small numbers the blue-tail fly (*Calliphora vomitoria*). All of these species commonly breed in animal matter. The females hibernate in sheltered places, and emerge with the warm weather of early spring to deposit their eggs.

The flesh fly is responsible for the largest maggots. According to Packard,* the females of this species, after being fertilized, retain the eggs until they have hatched. They deposit large numbers of living larvæ on exposed meat and animal refuse. Professor Lügger † states that single females of this species may give birth to 20,000 of these larvæ. Pieces of meat which I exposed August 1 were soon infested by the larvæ of this fly. The maggots were fully grown August 6 and pupated August 7 and 8; the flies emerged August 24 and 25, thus showing that about twenty-four days are required at this time of the year for the transformations of a brood. This period of time will be found to vary, I believe, according to the prevailing temperature, hot weather hastening, and cold weather retarding, the development of the insects. If we should allow an average of twenty-one days for each brood, seven broods would be possible in the five months of May, June, July, August and September. Owing to the variation in the length of the larval stage, where food is continually supplied, as at your establishment, there are no well marked broods, but a continual succession of maggots and flies.

The blue-bottle fly in point of numbers is the most common species at your place. Unlike the flesh fly, this insect deposits eggs instead of larvæ, and, as you pointed out to me, exposed meat is soon covered with masses of the eggs of this insect. In a short time the eggs hatch and give rise to maggots, somewhat smaller than those of the preceding species. Single females confined July 31 laid respectively 74,143,223 eggs, but under normal conditions the numbers doubtless would have been larger. These eggs yielded imagoes August 14 and 15, making the period required for the transformation of this species about fourteen days. This would allow ten broods during the months previously mentioned. As a matter of interest, I have computed the unrestricted increase of a single fertilized female during ten generations, allowing but 100 eggs per female and considering half of these to yield males, — conditions purely arbitrary and hardly possible in nature, but giving somewhat surprising results. The first generation would have 100 larvæ, developing to 50 males and 50 females; the second generation would have 5,000 larvæ; and so on to the tenth generation, which would be represented by 195,312,500,000,000,000 mature flies. Should we consider, for the purpose of illustration, that nine of these flies would require one square inch standing room, the tenth generation would make a belt of flies over two hundred miles in width around the entire globe. While the conditions that would afford such an unrestricted increase are entirely inconceivable, yet the figures show the possibilities of the

* Packard, "Guide to the Study of Insects," 1880, page 408.

† Second Report of the Entomologist, Minnesota Experiment Station, 1896, page 156.

reproductive powers of this insect. What wonder is it, then, that these blow-flies speedily destroy the carcasses of our largest animals? The third species mentioned (*Calliphora vomitoria*) was not very abundant, and I was unable to make any notes on its development. The life history of this insect, however, is known to be similar to that of the blue-bottle fly.

I might add that the excellent arrangements which you have devised for the rearing of dipterous maggots with which to feed your birds are of more than ordinary interest, and seem in every way adapted to obtain the desired results.

Yours very truly,

A. H. KIRKLAND,
Assistant Entomologist.

Incubators.

In our last report attention was called to the probable results from the use of incubators. Every one who has ever had any considerable number of hens under his care must realize the vexation and disappointment which constantly comes from their waywardness; and, what is even worse, treat them as you may, they are never entirely free from vermin. These pests get on the young pheasants and destroy many of them before they are old enough to keep themselves clean by dusting. So annoying were all these things that we determined to get rid of them if possible, and notwithstanding the assertion of pheasant breeders that it was impossible to raise these birds with incubator and brooder, we bought of Mr. Rankin a small incubator, capable of carrying about two hundred eggs, a plain, farmer-like machine, but too bulky and heavy for pheasant eggs. We subsequently built two smaller incubators, which we liked much better for the work. From the last one we obtained a hatch of ninety-five per cent., and, notwithstanding our inexperience, the entire hatch was from ten to fifteen per cent. higher than from the average hens.

It is easy enough to hatch pheasant eggs in any good machine that will hatch hens' eggs, with this exception: the shell of the pheasant egg is much closer grain and not so porous as hens' eggs, and the moisture necessary to the latter proves fatal to the former. Acting on the rule to put pans of water in the egg chamber, we lost many pheasant eggs in the first hatch. The chicks were so crowded in the shells that they could not get out.

Brooders.

There is no difficulty in hatching the eggs in any good incubator, but the rearing of the young pheasants, either in the brooder or under a hen, is not so easy. We made many and some interesting experiments in raising them in brooders, using mostly the Foster brooder. In the hands of so skilful a man as Mr. Foster this can be used successfully with a limited number of birds, but for extensive breeding of pheasants the heat should be evenly distributed throughout the chamber of the brooder and be self-regulating, as, if there is not sufficient heat, or if any part is warmer than another, they will crowd together and smother.

Outdoor brooders are not desirable for this work, as the sudden changes of weather render it impossible to maintain an even temperature; and it is inconvenient and almost impossible to give the chicks proper care in stormy weather, while the high winds that often occur are liable to disarrange things and in some cases set fire to the brooder.

The result of the exhaustive investigations made during the past season have led to the construction of a brooder house, partly covered with glass for the protection of very young birds in cold and wet weather, and equipped with brooders that are self-regulating and even in temperature. There is no guess-work about it; the temperature, once established, can be sustained with very little care. Our experience warrants the conclusion that with proper incubators and brooders nine-tenths of the cost and labor in rearing pheasants may be saved.

Experiments in this direction, but varying in methods, were made by Mr. Ames of North Easton and by Mr. Foster of Ashby (for the Fitchburg Rifle and Gun Club). Mr. Ames hatched all the eggs in an incubator, and Mr. Foster took the eggs from under hens when they began to hatch and put them in the incubator, to avoid vermin. All the chicks were reared in brooders. Both gentlemen acted in consultation with this Board, and both were anxious to obtain as many birds as possible from their limited stock of breeders, and neither felt disposed to run the risk of extended experiments in what is now proved to be a new and important departure in rearing pheasants. We append their reports.

NORTH EASTON, MASS., Oct. 16, 1897.

E. A. BRACKETT, Esq.

DEAR SIR:—In answer to your letter, let me say that I have had this year a little better success in raising pheasants than I did last. I have now about one hundred young birds, all of which were raised with the incubator and brooder. I have kept an accurate account of all the eggs my hens have laid, the percentage of their fertility, proportion of birds raised, etc., which I should be glad to show you at any time. From a comparison of this account with the one which I kept two years ago, I have proved, to my own satisfaction, that by the employment of the incubator and brooder I have been able to raise more birds, with less labor, than I could have done by setting the eggs under hens.

My first hatch, of sixty-seven, all died within the first week. The cause of this mortality was, I found when too late, that the temperature of the brooder had been kept too high. The cause of most of my subsequent losses was cold and wet weather.

I shall keep all my young birds until spring, and then turn some of them loose, reserving enough for future experiments. Unfortunately, a large proportion of my birds are cocks.

Two or three wild broods have been seen about here, which goes to show that the birds I turned loose two years ago have been able to withstand our winters. I think that pheasants, in their wild state, must lay earlier in the season than they do when in captivity; for one was brought in by a cat which was at least two weeks older than any young birds I had.

Yours very sincerely,

HOBART AMES.

ASHBY, MASS., Sept. 22, 1897.

Replying to your request, would say that the Fitchburg Rifle and Gun Club continued their attempts to rear Mongolian pheasants, and I have again had the care of them.

Of the birds raised last year only one was trapped for breeding. During the season five pairs have been received from your yards. They were bred in trios, and the two extra cocks were liberated in the spring, that they might breed with the hens that are known to have lived over from last year's breeding. Of the six hens at the start three died about June 1. The first egg was laid April 12; the last, August 4; total number of eggs, 217. Of this number, the two hens in yard No. 1 laid 110. All the eggs were set under hens, and 154

chicks were hatched; 66 of these are now alive and doing well. The rearing has been done entirely with the brooder mentioned in your report last year. The successful bill of fare has been a liberal supply of tender lettuce, clean maggots and custard, carefully fed. All have been kept yarded and the hens (about 30) will be kept and bred from next year.

Respectfully,

H. R. FOSTER.

Secretary I. O. Converse, of the Fitchburg Rifle and Gun Club, writes as follows, under date of October 30: —

Several years ago, before there ever was such a thing as a Mongolian pheasant in New England, a few members of the Fitchburg Rifle and Gun Club sent to Oregon and purchased five dozen pheasant eggs and had them shipped here by express, but either they were sterile or were shaken up too much in transit, for none of them hatched.

Last year we obtained some eggs from E. A. Brackett, chairman of our State Commission of Inland Fisheries and Game. From these eggs we raised 11 birds; 8 got away, leaving us 3. We obtained another trio from Mr. Brackett last spring, and have now 70 fine full-grown pure-breed Mongolian pheasants, all in beautiful plumage; and they are a sight to gladden the heart of the sportsman and the lover of the beautiful in bird life.

We have had ups and downs in breeding these elegant birds, but have now accomplished our desire. We can now rear these pure-breed Mongolian pheasants with as much certainty as the ordinary poultry man can raise his Plymouth Rocks. Harlow R. Foster of Ashby has charge of our aviaries, and he has proven himself equal to the task, and has reduced the rearing of these birds to a science. We now have eight large double pens and a winter and a summer run for the birds. In the coming season we shall have between 30 and 40 hens to collect eggs from, and as they lay from 50 to 60 eggs in a season, we ought to have "right smart" of these birds next fall.

Of those which got away and were liberated last spring, we know of three broods that have bred wild here this season, and every few days some one comes in and reports seeing some of the birds in our fields and coverts.

The members of the club are doing a grand work in propagating and releasing these elegant game birds, for they are not only a benefit to the sportsman, but, as they work in fields to a large extent, and are great insect destroyers, they will prove of benefit to the crop raiser in this vicinity. The club is doing a purely unselfish work, for all of the birds will be liberated on public grounds, so they will be a

benefit to the public at large as well as to members of the club. The birds are very hardy, impervious to cold, and as game birds will tax the skill of our sportsmen, and require the keenest of pointers and setters to bring them to bag. We would be pleased to assist any other club that is trying or would like to try to rear these lovely birds.

We have released several this season and shall have quite a number to breed wild next spring. We ask every one to refrain from molesting or destroying in any way any of these birds anywhere within our State until the law goes off in 1900.

The distribution of Mongolian pheasants to parties who were willing to take care of their breeding and turn out the young birds in their respective localities has not proved as successful as was anticipated. Although careful directions as to care and breeding were given, a majority either lost their old birds or failed to raise young ones. So far as stocking the State is concerned, it would in most cases have been better to have set them at liberty.

Two years ago we sent a trio of birds to Pittsfield, which were placed with a man to breed them. When we visited him in the fall we found his coops too high, and, having neglected to clip the wings, one of the females had flown up against the wire and was killed. At Mr. Stevenson's request we sent him another bird, but for the two years he has failed to raise any. The same experience is reported by others. To our inquiries Mr. Stevenson sends the following letter. The statement that the hens laid but nineteen eggs seems to us a mistake; it is far more likely that they were eaten by the birds.

PITTSFIELD, MASS., NOV. 6, 1897.

E. A. BRACKETT, Esq., *Chairman, Winchester, Mass.*

DEAR SIR:—Have delayed answering your letter in order to learn all I could about the pheasants placed out by Mr. F. G. Crane of Dalton.

I find about a dozen birds have been seen this season in Dalton, near where the birds were first put out, and one hen with a large brood of young just over the line in Pittsfield. Evidently the pheasants will live here if let alone. They seem to stay around and near cultivated lands, rather than go back on the hills.

You will be interested to know that Mr. Zenas Crane has within a short time turned out near his residence in Dalton two dozen pheasants. They were purchased of Mr. Woodward in New York, and are said to be Mongolians.

I am sorry to say we have again had no success in raising chicks from the two you sent us. The hens laid but nineteen eggs, and from these only five chicks were hatched, which lived but a few days. With your permission we will let the three out next spring, and shall hope they will improve on our experiment.

The woodcock and partridge do not seem to have been as plenty as usual this year, but trout have done well for us, so that fishing has been better than the past few seasons.

Yours truly,

J. M. STEVENSON.

Nine pairs have been liberated in Winchester, besides a number of surplus cocks, some of which, having no mates, have wandered away. In the last two years a number of broods have been reported in the vicinity within a mile or so of where they were let out, and there is not a week that we do not hear of one or more being seen. We regret to say that several have been killed by gunners. During the early part of November four persons were arrested and each fined twenty dollars and costs of court for killing pheasants. Other cases are known, and investigation may lead to evidence to convict.

Through the kindness of Mr. S. Forehand of Worcester the Mongolian pheasants were placed in the hands of the commissioners for the purpose of stocking the State; and the fact that we were the first to establish a successful method of artificially breeding them has led to an extensive correspondence throughout the United States, not excepting Oregon, from whence our birds were obtained. Not being permitted to send them out of the State, we have sometimes referred parties to the State game warden of Oregon, who, as will be seen by the appended letter, seems to appreciate the flooding of his office with correspondence:—

PORTLAND, OREGON, NOV. 3, 1897.

HON. E. A. BRACKETT, *Fish Commissioner, Winchester, Mass.*

DEAR SIR:—The Mongolian pheasant continues to thrive and increase in this State, where they were first introduced as a game bird on the American Continent. This increase is the more remarkable

because of the failure of the Legislature to provide adequate laws and funds for their protection. They have become the favorite market bird in this city, over ten thousand having been sold here last year during the one month that market sales are permitted by law (October 15 to November 15).

There is a great demand for these birds, for stocking purposes, from nearly every State in the Union, scores of letters being received at this office every week, making inquiries as to their habits and how they can be obtained. The demand has now become greater than the supply, as only birds bred and raised in confinement can be legally shipped out of the State, and then only upon affidavit of the shipper that the birds are such as to entitle them to shipment.

I have no doubt that the effort made by your commission and other enterprising citizens, to stock your State with this, the greatest game bird on earth, will prove successful. All that is necessary is wise protective laws strictly enforced, prohibiting their killing for five or six years, to thoroughly establish them.

Your climate is colder than ours, and the environment in your State not as favorable for their rapid increase; but they are a hardy, prolific bird, and I feel confident that they will gain a foothold if given a fair chance.

HOLLISTER D. MCGUIRE,
State Fish and Game Protector, Oregon.

Believing that the introduction of these birds is of great importance to both farmer and sportsman, we have given considerable space to recording, in part, what has been done in the care and breeding of them.

For assistance in this work the State is under obligations to Mr. Hobart Ames of North Easton, Dr. White of Sandwich, the Fitchburg Rifle and Gun Club, the Milford Gun Club, Senator Woodfall and many others who have freely given time and money for the public good.

GAME.

In our last report we called attention to the importance of a change in the game laws and the better enforcement of the same. In many respects our game laws are inferior to those of a majority of States where game is protected.

A few persons engaged in the cold-storage business are allowed to keep game and sell it after closed season has begun. They claim that they purchase very little that is killed in this

State, and never any that is killed here after the closing of the season, but do not deny that they receive it in large quantities from other States, whether killed in or out of season they do not know, but they do know that much of it is sent in direct violation of laws which forbid the transportation out of said States.

That these men are honest in their statements, that they do not purchase game out of season, we do not doubt, and if the traffic stopped with them, there might be little cause to complain; but they sell to hundreds of dealers for whom they cannot be responsible, many of whom do not hesitate to buy game unlawfully taken. Consequently the system of cold storage vitiates the laws for protection and renders it difficult to enforce them.

The game in this State is worth as much and more than the inland fisheries, and it is to be regretted that efficient means are not adopted, not only for its maintenance, but for its increase. The open season is too long for the limited amount of game in this thickly settled State.

Last year we recommended a bill to prohibit the sale of all inland game for a term of five years, and to abolish snaring. Subsequently a bill was offered which was far more stringent, but, as it was a local law, covering only a small part of the State, with but little opposition it was enacted by the Legislature. We have heard of nothing but good results from this law, the only objections being from outside parties, complaining because they were not included in said reservation.

The following letter is of interest to all who are anxious to preserve our birds and game:—

ROCKPORT, MASS., October, 1897.

DEAR MR. BRACKETT:—I simply desire to remind you of the promise to send me more of the Mongolian pheasants this fall. I learn that you have had excellent success this year, and desire to obtain several pairs to carry through the winter and then in the spring liberate them here in our "Cape Ann preserve," for such it is proving. There never was a law enacted that received more respect than the one making our Cape a reservation. It is working wonders; we have seen more birds this year than for many years,—so much so that one would almost believe that the birds themselves knew of the restrictive law. I attribute the increase to the discontinuance of shooting and

consequent taming of the birds which is particularly noticeable. When the law was enacted I was frequently told that it would amount to nothing; that the Italians and Finns — workmen in the quarries — would continue shooting Sundays, as they were in the habit of doing. The selectmen had some large notices printed on cloth, which were posted through the woods, warning violators, and wonderful have been the results. So well has this law succeeded here that I sincerely hope that some other sections of the State will ask for the same protection this winter. I believe that in this way we can finally accomplish what the marketmen have prevented in other ways.

I am sorry to say that I have not been so successful with my pheasants as I wished or expected. I have one pair of the old birds, — the other pair died, — and have raised four young ones. These are beauties, strong and healthy. I trust you can send me several pairs to winter for the reservation, which will be a good place to start them.

Very truly yours,

J. LORING WOODFALL.

In the Appendix will be found the bulletin of the “Rod and Gun Club of Massachusetts,” and also the report of Deputy Wm. Quiggle, appointed by the commission and acting under pay from this club. We earnestly recommend to all clubs in the Commonwealth the example set by this one for the suppression of illegal fishing and shooting.

We also extend our hearty thanks to the large number of voluntary deputies, who have done excellent work without compensation from the State, for the time and money they have expended in enforcing the laws. Reports received from 62 of these deputies show 68 arrests, 63 convictions, and fines amounting to \$1,476.

The attention of sportsmen is called to the fact that, owing to the indiscriminate slaughter of game, and other depredations committed by irresponsible parties calling themselves sportsmen, the farmers in some localities are, in self-defense, posting their land. In one town, containing some of the best shooting in the State, steps have been taken to post more than four-fifths of the land, and appoint and pay an efficient man to protect it.

We recommend a shorter open season, and the prohibition of the sale of all inland game killed in this Commonwealth. Something should be done to prevent the pot-hunter and snarer

from carrying on his destructive work. The taking of game with the aid of a ferret is prohibited, but the possession of a ferret in field or wood should be *prima facie* evidence of intent to use it. The Sunday law is defective and very difficult to enforce, and should be amended so as to include any person found in wood or field with firearms on that day.

It is now allowed by law to kill deer during the month of November, except on the Cape. As they are appearing in considerable numbers in various sections of the State, we recommend that they be protected for a term of years. In response to the demand from all parts of the State for the better enforcement of the fish and game laws, we recommend an appropriation for the payment of deputies for that purpose.

An act was passed by the last Legislature for the better protection of song and insectivorous birds, but it was rendered inoperative by the decision of the Attorney-General that it covered only birds killed in the State. We recommend an amendment to this act.

E. A. BRACKETT,

I. C. YOUNG,

E. D. BUFFINGTON,

Board of Commissioners of Inland Fisheries and Game.



APPENDIX.



[A.]

LIST OF FISH COMMISSIONERS.

U. S. COMMISSION OF FISH AND FISHERIES, WASHINGTON, D. C.

John J. Brice, Commissioner.

Irving H. Dunlap, Chief Clerk.

W. de C. Ravenel, Assistant in charge of Division of Fish Culture.

Dr. Hugh M. Smith, Assistant in charge of Division of Inquiry respecting Food Fishes.

Charles H. Townsend, Assistant in charge of Division of Statistics and Methods of the Fisheries.

ARKANSAS.

H. H. Rottaken, Little Rock.

W. B. Worthen, Little Rock.

CALIFORNIA.

Alex. T. Vogelsang, President, San Francisco.

J. M. Morrison, Sacramento.

C. B. Jones, Oakland.

Address, California Fish Commission, 78 Flood Building, San Francisco, Cal.

COLORADO.

Forest, Game and Fish.

I. S. Swan, Denver.

CONNECTICUT.

Fish and Game.

Hubert Williams, President, Salisbury (Lakeville P.O.)

Abbott C. Collins, Secretary, Hartford.

James A. Bill, Treasurer, Lyme (Bill Hill P.O.)

DELAWARE

Stanley Short, Milford.

Dr. E. B. Shortlidge, Supt. of Hatcheries, Wilmington.

GEORGIA.

Capt. J. D. Edmondson, Supt. of Fisheries, La Grange.

MINNESOTA.

Fish and Game.

W. S. Timberlake,	St. Paul.
C. S. Benton, Secretary,	St. Cloud.
F. von Baumbach,	Alexandria.
Wm. Bird,	Fairmount.
W. H. Morgan, Superintendent,	St. Paul.
S. F. Fullerton, Executive Agent,	St. Paul.

MISSOURI.

Game and Fish.

A. J. D. Burford, Chief Warden,	Burfordsville.
122 Deputy Wardens.	

NEBRASKA.

Wm. L. May, President,	Omaha.
Robert S. Oberfelder, Secretary,	Sidney.
J. S. Kirkpatrick,	Lincoln.
M. E. O'Brien, Sup't of Hatcheries,	South Bend.

NEW HAMPSHIRE.

Fish and Game.

Nath'l Wentworth,	Hudson Centre.
W. T. Shurtleff,	Lancaster.
F. L. Hughes,	Ashland.

NEW JERSEY.

Fish and Game.

Geo. Pfeiffer, Jr.,	Camden.
H. P. Frothingham,	Mt. Arlington.
P. W. Page,	Summit.
Geo. L. Smith,	Newark.

NEW YORK.

Fish, Game and Forest.

Barnet H. Davis, President,	Palmyra.
Hendrick S. Holden,	Syracuse.
Wm. R. Reed,	Potsdam.
Charles H. Babcock,	Rochester.
Edward Thompson,	Northport, L. I.
Charles A. Taylor, Assistant Secretary,	Albany.

OHIO.

Fish and Game.

Geo. Falloon, President,	.	.	.	.	.	Athens.
L. H. Reutinger, Secretary,	.	.	.	.	.	Athens.
E. H. Shorb,	.	.	.	.	.	Van Wert.
Albert Brewer,	.	.	.	.	.	Tiffin.
J. W. Owens,	Newark.
J. C. Burnett,	Sabina.

OREGON.

H. D. M'Guire, Fish and Game Protector,	.	.	Portland.
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PENNSYLVANIA.

Fish Commission.

S. B. Stillwell, President,	Scranton.
H. C. Demuth,	Lancaster.
Louis Streuber,	.	.	.	.	Erie.
James W. Correll,	.	.	.	.	Easton.
D. P. Corwin, Secretary, 609 Lewis Building,	.	.	.	.	Pittsburg.
James A. Dale, Corresponding Secretary,	.	.	.	.	York.

Pennsylvania Game Commission.

Wm. M. Kennedy, President,	.	.	.	.	Allegheny City.
Coleman K. Sober,	.	.	.	.	Lewisburg.
E. B. Westfall,	.	.	.	.	Williamsport.
James H. Worden,	.	.	.	.	Harrisburg.
Irving A. Stearns,	.	.	.	.	Wilkesbarre.
Charles Haebner,	.	.	.	.	Philadelphia.
Dr. B. H. Warren, Sec'y and State Zoölogist,	.	.	.	.	Harrisburg.

RHODE ISLAND.

J. M. K. Southwick,	.	.	.	.	Newport.
Wm. P. Morton, Secretary,	.	.	.	.	Johnstown.
H. T. Root,	.	.	.	.	Providence.
C. W. Willard,	.	.	.	.	Westerly.
A. D. Roberts,	.	.	.	.	Woonsocket.
H. C. Bumpus, Ph.D., Brown University,	Providence.

SOUTH CAROLINA.

A. W. Jones,	Abbeville.
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UTAH.

John Sharp, Fish and Game Warden,	.	.	.	Salt Lake City.
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VERMONT.

Fish and Game.

John W. Titcomb,	St. Johnsbury.
Horace W. Bailey,	Newbury.

VIRGINIA.

Dr. J. W. Bowdoin,	Bloxam, Accomack Co.
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WASHINGTON.

A. L. Little,	Tacoma.
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WISCONSIN.

Edwin E. Bryant, President,	Madison.
Calvert Spensley,	Mineral Point.
James J. Hogan,	La Crosse.
Wm. J. Starr,	Eau Claire.
Currie J. Bell,	Bayfield.
Dr. E. A. Birge,	Madison.
Henry D. Smith,	Appleton.
James Nevin,	Madison.
James T. Ellarson, Fish and Game Warden,	Madison.

WYOMING.

Fish and Game.

Gustave Schnitger,	Laramie.
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[B.]

LIST OF PONDS LEASED

*By the Commissioners on Inland Fisheries, under Authority given by
Chap. 384, Sect. 9, of the Acts of 1869.*

1879.

July 1.	Fresh Pond, in Falmouth, to Thomas H. Lawrence, 20 years.
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1883.

April 6.	Fresh Pond, in Tisbury, to Allen Look and others, 15 years.
23.	Keyes Pond, in Westford, to M. H. A. Evans, 15 years.
May 8.	Singletery Pond, in Sutton and Millbury, to towns of Sutton and Millbury, 15 years.
7.	The Great Pond, in Ashfield, to town of Ashfield, 15 years.

1884.

July 17.	Farm Pond, in Cottage City, to John C. Hamblin and others, 15 years.
Aug. 30.	Sand Pond, in Ayer, to inhabitants of Ayer, 15 years.
Sept. 5.	Great Pond, in North Andover, to inhabitants of North Andover, 15 years.

[C.]

REPORT OF SUPERINTENDENT OF HATCHERIES.

MARION, Dec. 4, 1897.

Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In making my report as superintendent of hatcheries, I will state briefly what has been done during the past year and what I think should be done in the coming year.

The 800,000 eggs put on the trays last season hatched with a loss of only 10 per cent., and there were distributed from the Sutton, Winchester and Hadley hatcheries last May 700,000 good healthy fry.

The trouble met with last year in the new runway below the Sutton dam has been remedied by putting in a plank bottom, which gives now a water-tight runway 130 feet long by 8 feet wide, divided into five compartments, carrying water from one to two feet deep.

The two ponds have been greatly benefited by removing large quantities of a kind of vegetable ooze that has been accumulating for a long time, the surrounding grounds also have been considerably improved.

The fish are very slow in running to the trap this year, and up to the present time we have taken only 400,000 eggs. The condition of the fish was very good up to about two months ago, when fungus began to show, and consequently we lost quite a number. The fish will all be examined very closely this year, disposing of all showing any signs of fungus, and putting back in the pond only perfectly healthy fish.

In order to free the Hadley pond of suckers and pout, I drew off the pond in March and let it remain until November before flowing again; I had the embankment at the dam covered with sod and muck, so as to avoid any gravelly spots for the fish to deposit their eggs upon.

After distributing our fry in the spring, I screened off a place in the stream below the dam and put in a few thousand fry, but owing to a freshet in July, the worst known for forty years, everything in

the lowlands was overflowed, and in consequence many of the fry were swept away. I only succeeded in putting into the pond this year 365 fingerlings, ranging from four to six inches in length. To avoid any such trouble, I have put in a new four-inch iron gate at the dam, so as to take water from the lower part of the pond to run the contemplated yard or pen for growing young fish, and be independent of the overflow from the pond.

Some change should be made at the Sutton pond; there is a portion at its head that is very shallow. During the hot summer months the water covering this section becomes warm and sluggish, and is forced down into the lower part of the pond where the fish congregate in the deep and cooler water. To prevent this, a dam can be thrown across the pond so as to flow the back part about two feet deeper, or the same can be filled in, leaving a channel wide enough to take the water from the head, directly to the deeper part of the pond; the difference in the two plans suggested being that, while the former will give more pond surface, the latter will give about the same as is used at present, but with more aeration. By driving pipes I think we can get flowing wells in each of the compartments of the runway, which will be a great improvement on the present way of using the overflow from the pond.

There is considerable work that should be done at the Hadley hatchery during the coming year. A dam and a trap should be built at the head of the pond; a pen or yard should be constructed below the dam for young growing fish, the grounds around the building should be graded and seeded down, and the road to the highway widened and in some places filled in. I would also suggest that about two thousand fingerlings be put in the pond.

The following shows the distribution of trout fry from the different hatcheries.

Respectfully submitted,

JOHN W. DELANO.

DISTRIBUTION OF TROUT FRY, 1897.

<i>From Winchester.</i>	
A. S. Backus, for waters in Barnstable.	J. C. Hartshorne, for waters in Wakefield.
John S. Nicholson, for waters in Hyannis.	Oscar Stowell, for waters in Lynnfield.
Geo. E. Keith, for waters in Bridgewater.	Geo. H. Maynard, for waters in Hudson.
H. K. Perkins, for waters in Bridgewater.	Robert Gowing, for waters in Peabody.

DISTRIBUTION OF TROUT FRY — *Continued.*

Alex B. Clark, for waters in Peabody.

Chas. A. Wiggins, for waters in Peabody.

Anson L. Clark, for waters in Ipswich.

Frank E. Hodgdon, for waters in Ipswich.

J. A. Blake, for waters in Rowley.

A. L. Savory, for waters in Rowley.

F. R. Whitcher, for waters in Amesbury.

Chris Holmes, for waters in Dracut.

J. Watts Whitman, for waters in Dracut.

C. A. Mitchell, for waters in Chelmsford.

G. A. Coburn, for waters in Chelmsford.

C. L. Smith, for waters in Chelmsford.

Frank J. Ladd, for waters in Tewksbury.

Wm. A. Lang, for waters in Chelmsford.

M. L. Soper, for waters in Tyngsborough.

Edmund Sumner, for waters in City Mills, Norfolk.

L. G. McKnight, for waters in Templeton.

L. G. McKnight, for waters in Gardner.

L. G. McKnight, for waters in Ashburnham.

L. G. McKnight, for waters in Winchendon.

G. H. Kelton, for waters in Petersham.

F. D. Gafney, for waters in Petersham.

W. H. Frost, for waters in Athol.

Chas. Horr, for waters in Athol.

J. S. Harwood, for waters in Phillipston.

C. W. Bates, for waters in Phillipston.

L. E. Turner, for waters in Templeton.

C. W. Burton, for waters in Adams.

C. J. Noble, for waters in Windsor.

W. S. Jenks, for waters in Bassett and Cheshire.

Geo. F. Sayles, for waters in Savoy.

From Sutton.

Chas. E. F. Higgins, for waters in Paxton and Carruth.

Thomas P. Brown, for waters in Rutland.

Chas. L. Allen, for waters in Worcester.

E. D. Buffington, for waters in Worcester.

R. B. Dodge, for waters in Charlton.

Wm. F. Tucker, for waters in Ware.

W. C. Hamilton, for waters in Auburn.

W. C. Hamilton, for waters in Princeton.

Forrest W. Forbes, for waters in Westborough.

Richard Fay Parker, for waters in Westborough.

Geo. A. Colony, for waters in Fitchburg.

E. H. Spencer, for waters in Fitchburg.

D. C. Luther, for waters in Spencer.

C. V. Dudley, for waters in Whitinsville.

Benj. Smith, for waters in Dalton.

Benj. Smith, for waters in Hinsdale.

Benj. Smith, for waters in Lanesborough.

Benj. Smith, for waters in Pittsfield.

Benj. Smith, for waters in Hancock.

Benj. Smith, for waters in Berkshire.

Chas. F. Rice, for waters in Grafton.

DISTRIBUTION OF TROUT FRY — *Concluded.*

Wm. F. Wheeler, for waters in Hubbardston.

Seth P. H. Hale, for waters in Williamsville.

F. M. Aldrich, for waters in Mendon.

Stillman Russell, for waters in East Douglas.

W. L. Hubbard, for waters in Princeton.

From Hadley.

Wm. H. Foote, for waters in Westfield.

G. H. Perkins, for waters in Westfield.

C. H. Smith, for waters in Easthampton.

Geo. S. Buckner, for waters in Easthampton.

T. M. Welles, for waters in Williamsburg.

F. M. Johnson, for waters in South Amherst.

A. D. Moore, for waters in Belcherstown.

L. W. West, for waters in Hadley.

James Anderson, for waters in Springfield.

E. B. Hodskins, for waters in Springfield.

C. M. Pettingill, for waters in Cummington.

Fred Champney, for waters in North Adams.

L. D. Bailey, for waters in Shelburne Falls.

E. C. Frost, for waters in Shelburne Falls.

J. G. Brown, for waters in Shelburne Falls.

Albert W. Mann, for waters in Shelburne Falls.

[D.]

REPORTS OF DEPUTIES.

MARION, Dec. 4, 1897.

Commissioners on Inland Fisheries and Game.

GENTLEMEN :—In submitting my report as deputy, I will again call your attention to the large decrease in the lobster catch. I have received many returns from fishermen in the business last year, who report not fishing this year. One party has written me that, owing to the scarcity of lobsters and the increase of fishermen, he has set no traps this year, and, unless further legislation is enacted for the better protection of the lobster, there will be a continual decrease until they are exterminated. When such statements as the above are received from men who have made fishing a business, and the fact that the lobster catch has fallen off from 1,600,000 in 1890 to about 900,000 for the present year, it must be apparent to all that additional legislation must be enacted to save the lobster fishery from becoming an industry of the past.

There is a class of fishermen who, looking only to the present and caring nothing for the future, will violate the laws and run their chances; if caught, pay their fines and continue the same business. To reach this class of people and compel them to conduct their business lawfully, is why further legislation is needed. I have spent considerable time looking after the violations of the lobster laws, and have had parties in court during the year who have paid fines amounting to \$325.

There has been a large decrease in the number of returns sent in from the net and pound fishermen, and a corresponding decrease in most of the kinds of fish taken.

In accordance with chapter 208 of the Acts of 1897, I have, under your directions, stocked a number of the great ponds of the Commonwealth with white perch. I found that fish about four inches long could be transported with less loss than any others, and, while there were plenty of perch in the pond where we did the seining, we met with considerable trouble in getting just the size of fish we

wanted. Five and six cans were taken at each shipment, with fifty fish to a can, and in all shipments but one were turned into the ponds in good order, the reported loss not being over four fish to the can. The total number of perch shipped was 2,500, with a total reported loss in transportation of 128.

The following is a list of the towns and ponds in which the fish were deposited.

Respectfully,

JOHN W. DELANO.

Ponds stocked with White Perch, 1897.

Upper Falls Pond, Attleborough.	Machine Works Pond, Whitinsville.
Lower Falls Pond, Attleborough.	Gull Pond, Wellfleet.
Merrimachi Pond, Attleborough.	Leaches Pond, North Chelmsford.
Bungay Pond, Attleborough.	Lake Attitash, Amesbury.
Archies Pond, Wrentham.	Lake Quannapowitt, Wakefield.
Whiting Pond, Wrentham.	Reservoir Pond, Winchester.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—As one of your deputies, I respectfully submit the following report for the year 1897.

Notwithstanding the frequent arrest and punishment of catchers of short lobsters along the north shore, the business of destroying undersized lobsters by the catchers has continued the present season with little if any abatement. The catcher feels secure in his operations, as his work of destruction is committed while in his boat, at a safe distance from the shore. At the approach of an officer, or a stranger, his stock of broken tails and meat is immediately dumped into the water, thus obliterating all traces of his illegal work. His loss from the process of dumping is small, as he only receives two dollars per hundred from the dealer in lobster meat for the tails of lobsters thus destroyed. Many short lobsters are taken by fishermen and others who use the folding iron hoop trap in the bays and harbors along the north shore in the breeding season, when lobsters are found more numerous near the shore. None of this class of catchers make any returns of their catch, claiming they are not engaged in the taking of lobsters as a business. Hundreds of the folding iron hoop traps are in use during the month of June, July and August, and thousands of undersized lobsters are destroyed. Several of these parties have been arrested and fined for taking short lobsters. As the folding iron hoop trap is only used in the bays and harbors, near the shore, it would seem to be justifiable, and in the interest of all legitimate lobster catchers, and a means of further protection of the

lobster industry, to prohibit the use of the folding iron hoop trap in the taking of lobsters.

I desire to again call the attention of the Board of Commissioners to the importance of a law regulating the space between the slats of lobster traps, thus affording undersized lobsters an opportunity to escape. Such an act by the Legislature would seem to be quite as proper and as useful as are those regulating the size of mesh to be used in the different inland fisheries.

The observance of the close season in relation to the shooting of partridge, quail and woodcock shows a decided improvement. A better class of hunters and sportsmen seem to have taken the place of the pot-hunters and poachers of former days. Only three complaints have been sent me of parties attempting to take partridge by means of snares, one from Norfolk County, one in Essex County and one in Worcester County. In one instance it was claimed that the person setting the snares was not violating the law, as he was using snares on his own premises. To allow a person to engage in a business simply because he is the owner of the premises, when under other conditions his business would be regarded in law as a crime, may properly be called class legislation, and unworthy of a place on the statutes. Such an act should be repealed.

The efforts of the State Board of Fish and Game Commissioners to stock the forests of the State with the Mongolian pheasant as a game bird has thus far proved a success. Many flocks of young birds have been seen this season. One flock was seen in the woods near Newburyport, a distance of twenty-five miles from where the breeding birds were liberated. At Danvers and North Andover flocks have been seen, and several flocks of young birds have frequently been seen in the vicinity of the Middlesex Fells Park. Complaints were forwarded to me of persons shooting pheasants at Danvers, West Newbury, Newburyport and Watertown. The several parties were arrested and convicted. It has been ascertained, beyond any question of doubt, that the Mongolian pheasant is one of the few insect-eating birds that will devour the gypsy moth. This fact alone would seem to be sufficient to encourage their further propagation and protection.

Respectfully,

B. P. CHADWICK,

Deputy Commissioner.

BRADFORD, Nov. 15, 1897.

The following are a portion of the reports from our volunteer deputies, showing the condition of fish and game and the tone of popular sentiment in regard thereto, in all sections of the State: —

AMESBURY, MASS., NOV. 9, 1897.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I herewith submit my report as deputy.

With the assistance of the local game wardens, farmers and the sportsmen, there has been very little illegal fishing or shooting in my immediate vicinity. I arrested two men early in the season for seining, and they were fined \$20 each; being poor men, with families, I refunded them my fees (\$20). This put a stop to the using of seines illegally.

The use of a hand or dip net should be prohibited. The yellow perch is our principal food fish; they run up the streams in schools early in the season and are dipped out in large quantities. I shall try to have the law changed at the next session of our Legislature.

The first of the season I had a lot of notices printed, prohibiting shooting; with consent and assistance of the farmers I posted these where I knew grouse, woodcock and quail were in the habit of breeding. Although I spent about every Sabbath during close time in watching these places, I believe the notices accomplished more than a half-dozen deputies could. The result has been, grouse, woodcock, quail and snipe have been unusually plenty with us this season, although the sportsmen in adjoining towns report poor shooting. Eternal vigilance on the part of wardens and deputies does the business.

The snaring of game is almost unknown here. It would be a serious mistake for whoever undertook this business; no mercy would be shown, as in the case of the poor seiners. I am a hunter and have been a fish and game warden a number of years, so think I am qualified to say that, compared with previous years, illegal fishing and shooting with us is an unknown quantity.

Beside the time I have put in afoot and with my team, I have attended one hearing before the fish and game committee at the State House, have labored with legislators and senators in the interest of fish and game protection, have visited the hatcheries at Winchester three times for fish, etc., for stocking purposes, and have paid my own expenses and have never received one cent from the State or any other source.

Respectfully submitted,

F. R. WHITCHER,
Deputy.

BOSTON, OCT. 6, 1897.

The last bulletin was dated March 22, but the secretary (to tell the truth) has been too busy to write bulletins. Every day has counted, however, and the future will be influenced much by the work of the past eight months.

The whole State east of Worcester has been covered, largely on foot; and correspondents, places to stop at when in the field, and the most notorious poachers in the different towns, have been located.

The beginning of a system of "underground communication" has been established, and we have already begun to make good use of it; so that we can quickly learn from reliable sources if any of the many poachers begin to get to work, — in fact, three notorious ones have gone to work at their trades this summer for the first time in years.

Several persons, but not many, found with guns in the woods during the summer have been sent home, — and they all went.

We had one complaint, in July, of quail shooting, which was well founded. It proved to be the work of a boy, and out of consideration for his father, a respected citizen of the town, the matter was dropped. The boy will probably do no more shooting out of season.

In a postscript to the March bulletin mention was made of illegal trout fishing, also of seining smelts. The club secured conviction in both cases. In the trout fishing case the man was sent to jail, as he did not see fit to pay \$20 fine and costs, — and there is also another story connected with the case. He got off easy, and there was no more fishing in that locality until the law went off.

In the smelt seining business six persons were interested, and at the trial in Hingham were all convicted, being fined \$50 each and costs. They were not satisfied, however, and appealed to the superior court in Plymouth, where they had what did (apparently) suit them, viz., \$65 each, instead of the \$50 at Hingham; and there wasn't a man on the smelt spawning grounds all the rest of the season, except our warden.

We had hoped to stop the spearing of black bass on their spawning beds during the spring, but were not successful, — though not from lack of endeavor. Better fortune next time.

Several complaints of snaring came with the opening season, and at Burlington Charles A. and George H. Nichols were arrested on September 22. The trial came off September 28, at Woburn, and conviction and fine of \$20 each, followed. In almost every case there has been an interesting story, and this case was no exception.

It was hard to have our warden kicking his heels impatiently in the bushes at Burlington, waiting for his man to turn up, while the secretary was receiving notes and telephones every day from three other places; but he went as soon as he could to Dighton, and the trial of Everett Horton comes off next Tuesday, for snaring. Your warden is now in another locality, and it is not the pleasantest thing in the world to lie in just one clump of bushes from daylight to dark, day after day; but if the snaring of our game can be stopped, it is worth

much to us all, and far more than the money it costs to stop the business.

During the summer, in response to many requests, one thousand copies of the fish and game laws were printed, of which one hundred remain.

The club may now consider itself "full-fledged," having arrived to the dignity of being legatee. The amount was not large, but the \$23.69 will be spent for the right purpose and in the right way; and the thanks of the club go out to the Medford Shooting Club, and the persons who suggested the legacy, for their thoughtful kindness.

Every week of the club's existence gives added testimony to the good use to which we could put another warden. And, although the members have done nobly in furnishing money for the work in hand, yet again the secretary would ask the help of all, to make our membership two hundred. With two hundred members the annual subscription of ten dollars will give us the services of two wardens all the year, and extra help when needed. There are hundreds of sportsmen who would gladly help on a good work, and we are doing good work and want to do more and better.

The prospects for game this season seem more uncertain than usual. In some sections partridges have done well, particularly in portions of Essex, Middlesex and Worcester counties. In portions of the above and in the southern counties they seem to be unusually scarce. Woodcock are hardly as plentiful as usual, though of course the flight birds will not be here for some time yet. Quail have, as a rule, done well and there ought to be good shooting, particularly on the Cape, from all appearances.

HENRY J. THAYER,

Secretary Rod and Gun Club of Massachusetts.

Nov. 9, 1897.

Hon. E. A. BRACKETT, *Chairman Commissioners on Inland Fisheries and Game.*

I have the honor of submitting my report of work done during the past year.

During the past twelve months I have devoted my entire time, weather permitting, to the enforcing of the laws of the Commonwealth relating to fish and game, my expenses being paid, as heretofore, by the Rod and Gun Club.

According to the wishes of the Rod and Gun Club, I have given special attention to the patrolling of the woods and fields, and as regards enforcing the laws relating to the inland fisheries and insectivorous and game birds; and have covered, mostly on foot, all that portion of the State east of the city of Worcester.

I have instituted prosecutions against five persons for violations of the laws, and obtained conviction in every case, viz. : —

Geo. W. Richardson of Walpole, trout out of season, fined . . .	\$20 00
Chas. A. Nichols of Burlington, snaring, fined . . .	20 00
Geo. H. Nichols of Burlington, snaring, fined . . .	20 00
Everett Horton of Dighton, snaring, fined . . .	40 00
Jas. R. Mackay of Easton, snaring, fined . . .	20 00

Also I have advised and warned forty-two others found with fishing implements or guns during close season.

Respectfully,

W. E. QUIGGLE,
Deputy Commissioner.

HAVERHILL, MASS., Dec. 7, 1897.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — Since receiving my appointment, which came late in the season, I have, with the aid of State Deputy Chadwick of your board secured convictions of three persons for having pheasants in their possession ; one case was put on file and two were fined \$20 each. I have also secured the conviction of another party, who was fined \$20. Also one party for hunting with a ferret was fined \$20, and three cases, for having short lobsters, 13 in all, pleaded guilty and paid fines amounting to \$65. Also four cases for having 18 short lobsters in all ; convicted, fined \$90 ; appealed. Also one continued case for 8 short lobsters ; the party was discharged.

Respectfully submitted,

JOHN H. HERSEY.

ROCKPORT, MASS., Nov. 8, 1897.

To E. A. BRACKETT, Chairman Commissioners of Massachusetts Inland Fisheries and Game.

DEAR SIR : — I will start my first annual report by saying that the last session of our Legislature passed a law making it unlawful to kill any land bird or animal on Cape Ann for a period of five years from the passage of the act. It now looks as if this law would have the effect of restocking our fields and covers with quail and partridge, which were becoming very scarce. I have seen this fall more coveys of quail and partridge in larger numbers than for years, and in my opinion, if the law is as well observed for the next four years as it

seems to be this, we shall have at the end of five years game enough to make it worth while for sportsmen to hunt on Cape Ann. Senator Woodfall and myself succeeded in raising four Mongolian pheasants from the birds you sent us (three females and a cock), and with our experience gained this year we hope to have better luck next season. I have had no occasion to make any arrests for violation of the game laws, but have answered a large number of questions in regard to the laws, and I think that the fact of there being a game warden on the Cape has had a good effect in restraining would-be violators of our laws. One of the worst pests as regards the destruction of quail are domestic cats, who have either run wild or have been deserted by their owners, and are constantly on the lookout to pounce on a bird from the covey as they are feeding in the fields. To prove this fact, a few years ago as I was working a setter dog on quail the dog came to a point, and in a hole in the wall were two small kittens and half a quail which the old cat had brought to feed her young with. The presence of a number of hounds in the woods in the summer and fall running hares during the breeding season has the effect of reducing the number of hares considerably as it prevents their breeding. I think it would be a good idea to pass a law allowing game wardens to shoot dogs found hunting in the woods during the close season, either with or without their owners. If reappointed warden I shall use my best efforts to have the laws enforced.

Respectfully yours,

GEO. W. TUFTS,

Deputy.

BEVERLY, MASS., Nov. 8, 1897.

Commissioners EDWARD A. BRACKETT, ISAIAH C. YOUNG, ELISHA D. BUFFINGTON.

GENTLEMEN: — In accordance with your request, I would respectfully submit the following report: —

We have a few brook trout. In our ponds are black bass, pickerel and perch. I think eighty per cent. of our pickerel taken through the ice are spawn fish. What we especially need is a law prohibiting the catching of pickerel through the ice for at least five years. That will give them a chance to drop their spawn.

As regards game. Quail are quite plentiful for this section of the State. For some reason partridge are scarce this year, but there were lots of old birds left over. We have some little woodcock shooting about this time (the migrating season). We also have a few pheasants that have done pretty well, and if they can be protected from the gunners this fall they ought to show up well in 1898.

August 29 I went down to Baker's Island and called on Henry Morse, the proprietor of the hotel, and looked over his supply of lobsters. Found about a hundred and fifty tails of mutilated lobsters that had been scalded. We had him in court the following Friday, but could not convict him. His counsel made it appear that the lobster was cooked. The lobster fishermen take the short ones, break off the tails and leave them in scalding water just long enough to remove the shells. This process they call cooking. This point of law that the lobster men use to screen themselves should be done away with (namely, "When a lobster has been scalded it has been through a process of cooking").

I have made no arrests, but have sent home several Sunday gunners.

There is plenty of work for the right man in this section if he could put his whole time into it and receive sufficient remuneration for his service. Much could be accomplished for fish and game protection, and the work demands the undivided interest of some one.

I would like some posters on cloth relating to pheasants and their close season, which I could nail up in different sections, so that gunners might see them and not have ignorance as their plea. Many hunters prefer to be ignorant, but a few posters would give them information and take away their excuse of ignorance.

EZRA S. PIERCE.

IPSWICH, MASS., Nov. 6, 1897.

TO EDWARD A. BRACKETT, *Chairman Department of Fisheries and Game, State of Massachusetts.*

SIR:—Herewith you will find, as you have directed, my report of work as a deputy in the vicinity of Ipswich, Mass. I should like to undertake the work next year, and hope for your favorable consideration. I do believe in protecting the fish and game, and in the work of your department. I can give you references if you want me to do so.

Respectfully,

JAMES A. LORD.

Report of James A. Lord of Ipswich, Mass., 1897.

In Court. Date.	Name.	Complaint.	Remarks.
May 22,	Proctor, Thomas, . .	Violating clam law, .	Fined \$10 00.
May 22,	Proctor, George, . .	" "	" 10 00.
May 22,	McIntire, Alphone, . .	" "	" 10 00.
May 22,	McIntire, Thomas, . .	" "	" 10 00.
May 22,	Burnham, America, . .	" "	" 15 00.
May 25,	Burnham, Otis, . .	" "	Discharged.
May 25,	Callahan, John, . .	" "	" "
June 24,	Callahan, John, . .	" "	Fined \$15 00.
Aug. 7,	McIntire, George, . .	" "	" 10 00.
Aug. 7,	Callahan John, . .	" "	" 15 00.
Aug. 7,	Burnham, George, . .	" "	Placed on file.
Aug. 19,	Richardson, Edward, . .	" "	Fined \$10 00.
Oct. 16,	Small, John, . .	" "	" 10 00.
Oct. 16,	Small, William, . .	" "	" 10 00.
Oct. 6,	Colman, Thomas, . .	Violating smelt law,	Referred to grand jury.
Oct. 6,	Smith Charles, . .	" "	" " "
Oct. 6,	Cole, Peter, . .	" "	" " "
Oct. 14,	Noyes, Eldon, . .	" "	" " "
Oct. 14,	Mattron, Herbert . .	" "	" " "

IPSWICH, Nov. 15, 1897.

To the Board of Commissioners of Fish and Game.

GENTLEMEN: — In compliance with your request and in accordance with the terms and conditions of my appointment, I herewith submit for your consideration the following report of my work, together with a brief account of the condition of fish and game in this locality: —

As to my work, I have carefully noted the condition of our fish and game since my appointment, distributed and posted copies of game laws and such other kindred matters as I could procure; and, while trying to encourage and cultivate a healthy protective sentiment, which I feel confident is growing in this community, I have been on the watch for any violation of our game laws, and with the following results: —

On Aug. 2, 1897, in company with Deputy James Lord, I arrested John Callahan and George McIntire for violating the provisions of chapter 289 of the Acts of 1897. They were brought before Judge Sayward, found guilty and fined \$25 and \$15 respectively. Both appealed, and the case was brought to the superior court, before Judge Bond, August 8, when Callahan was found guilty and fined \$50, which he paid. By advice of his attorney, Mr. Hines, McIntire pleaded "*Nolo contendere*," and the punishment is still hanging over him.

On Oct. 4, 1897, arrested Thomas F. Colman for violating section 58, chapter 91, Public Statutes. He was brought before Judge Say-

ward, bound over in the sum of \$100 to appear Oct. 9, 1897, when he defaulted.

Oct. 14, 1897, arrested Elden G. Noyes and Herbert G. Mattron of Newburyport for violating section 58, chapter 91, Public Statutes. They were brought before Judge Sayward, but, as this offence was beyond his jurisdiction, they were bound over in the sum of \$100 each to appear before the superior court, to be held in Salem in 1898.

This finishes the account of my work as far as arrests and bringing into court are concerned, but I feel confident that the appointment of deputies has had a very wholesome and deterrent effect upon the minds of many, and in consequence violations have been less frequent and many fish and birds have been saved for one season, at least, in this locality.

Respectfully yours,

A. S. GARLAND.

WAKEFIELD, Oct. 28, 1897.

Hon. E. A. BRACKETT, *Chairman State Board of Fish and Game Commissioners.*

Fishing.—More fishermen have been seen on Lake Quannapowitt and Crystal Lake this season than usual, and more fish taken, particularly yellow perch and pickerel, but no large ones. White perch and bass have mostly disappeared, or have refused to bite. But few have been caught. The lot of *two hundred and fifty* white perch spawners, sent by your order, came through all right, and were all planted alive in Lake Quannapowitt. Our local fish committee are having a screen put in at the outlet, as it was thought that many large fish have migrated down Saugus River. A few German carp have been caught, one weighing about *twenty pounds*, which is now confined in a little pond on the estate of James H. Carter, Wakefield. Many other very large ones have been seen in the lake. When planted six years ago they weighed from *two to four* pounds. There were about *two hundred and twenty-five* in the lot. In the early spring thirty-one square-tail brook trout, bought by subscription, were planted in Crystal Lake, and five thousand trout fry, sent by you, were placed in a good brook joining this lake.

The lakes have been carefully guarded against illegal fishing, and no Sunday fishing has been observed or reported. I think if winter fishing were prohibited entirely it would be of great benefit, and would work no harm to the public in the long run, especially now that you have stocked the lake with white perch. The town has adopted the act restricting fishing to *one line* and *one hook*. Several parties attempted

to set more than one on the ice last winter, but when informed of the law readily conformed to it. I have inspected the several fishways on Saugus River, and have found them about useless. One of them has been entirely destroyed by the city of Lynn.

Trapping and Shooting. — I have visited the woods several times, and have found things all right. No complaints have reached me and no arrests have been made. A few partridges and gray squirrels have been brought to bag, and a pair of your pheasants were seen in the woods at the head of the lake this fall, also two deer.

Respectfully submitted,

SAMUEL PARKER,

Deputy Commissioner.

LOWELL, MASS., NOV. 8, 1897.

Hon. E. A. BRACKETT, *Chairman of Commission on Inland Fisheries and Game.*

DEAR SIR: — I respectfully submit the following report of the fish and game in my vicinity. I have seen no salmon here this season, I think owing to the fishway at Lawrence being destroyed. I do not think many have been able to get up the river. In July I saw five black bass near the dam, and there was also a considerable number of suckers and chubbs, also yellow perch and hornpouts, very few eels being seen.

Saturday, October 30, I called on Thomas H. Holmes, in charge of the Lawrence fishway, and was shown where the new fishway is being built, which will be a big improvement. The fishway here in Lowell is very poor, and I hope that soon we will have one here the same as the one now being built at Lawrence, or as good.

I have posted notices near the fishway, some of which have been destroyed, but I have kept renewing them, have stopped several parties from fishing near the fishway, have taken up and destroyed two nets in Tyngs Pond, also three set lines; and in Mud Pond, which is connected with Tyngs Pond, destroyed four set lines. These ponds are situated in Tyngsborough. There is splendid white perch fishing in both of these ponds.

I had a complaint that two men were taking out white perch from Tyngs Pond with a net, and I watched for five days, but no netting was done during that time. Complaints have been very few. I have had no evidence against any person for violating the law, therefore have made no arrests.

There was an application sent in to you for the stocking of Leaches Pond, in Chelmsford, with white perch. When you have the fish ready, by letting me know I would take charge of them, and see to

the stocking of this pond. I would recommend this fish for stocking ponds as one of the best of food fish. This fish is also a greedy biter, and gives fine sport to the angler. I have caught several in Tyngs Pond weighing one and one-half pounds, quite a number one and three-quarters pounds, also one over two pounds.

I visited Great Pond, in North Andover, which was leased in 1884 to inhabitants of North Andover for fifteen years, and have been told that some large strings have been caught there this season, no fishing being allowed between December 1 and July 1.

I recommend that fishing for pickerel through the ice in all ponds be prohibited for a period of five years at least, as this fish is becoming very scarce.

Game seems to be quite plenty in this vicinity this year. Partridge are showing up well; woodcock are not very plentiful; quite a number of quail and plenty of gray squirrels. I have destroyed a number of snares found in Tyngsborough. I have given notice that all persons caught using ferrets in hunting rabbits will be prosecuted.

If reappointed, I would use every means possible for the enforcement of the fish and game laws.

Respectfully yours,

GEORGE T. SPENCE,
Deputy.

BRAINTREE, MASS., NOV. 3, 1897.

MR. EDWARD A. BRACKETT, *Chairman of the Commissioners on Inland Fisheries and Game.*

DEAR SIR:—I have the pleasure of saying, in this my second report, that I find the laws protecting game have been fairly well observed, owing principally to your deputy and his associates, who have ever been on the watch for the better protection of our game laws.

Quail and partridge are increasing; woodcock are scarce. I have had several complaints for snaring, principally by boys, and I am aware that it has been carried on to some extent by men. If we could afford to give it more time, I have no doubt that we could catch some of them. I have notified several that if caught prosecution would follow.

This season the Sunday law has been very well observed in the woods in most parts of my district; but I find that in the shooting of wild fowl and shore-birds the Sunday law has not been well observed.

The fishways on Monaticquot River were kept in good order; but, owing to the government dredging the channel at the head of the

river, where the fish enter the fishways, very few went up, alewives especially.

I have had no complaint from the fish wardens, except for the taking of short lobsters at Cohasset. I inquired into the matter and put an officer on track of these parties, and have had no complaint since.

One word in regard to the clam digging on our shores. I am well aware of the law regulating the taking of clams. There should be a close season in this State for at least every other year, from the 1st of May to the 1st of September. There are parties who make it a business, and it is carried on to such an extent that it is almost impossible to find them large enough to dig; and if some more stringent law is not made to protect them, they will become extinct on our shore.

Very respectfully yours,

HENRY GARDNER,
Deputy Commissioner.

QUINCY, NOV. 10, 1897.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I submit the following report as deputy for enforcing the fish and game laws for 1897:—

I find, with few exceptions, that the lobster fishermen will handle short lobsters. I have made two arrests for selling short lobsters. In both cases the defendants were convicted. One paid a fine of \$50, and the other one, on three different counts, was fined \$265, and he appealed. His case is now pending at Dedham. I think the law should be more vigorously enforced. As fishermen mostly live on the islands in the harbor, a deputy has to have a boat to get at them. As I have no authority to hire a boat, it is hard for me to enforce the law as I would like to. It is the same with the violaters of the smelt law. I have reliable information that parties are seining smelts in Quincy Bay and in the rivers. I have written to Mr. Delano in regard to it. Smelts were never more numerous than they have been this season, and it would be a pity to have them destroyed by seiners.

In regard to bird shooting by Italians and Armenians, they have nearly exterminated all the song and insectivorous birds. I arrested four for shooting robins. Two of the defendants were fined \$10 each, and the other two cases were placed on file by the judge, as they had no money and had families to support. The law of 1897 in regard to shooting from boats is so strained that it is a dead letter, as the judge decides that shooting can be done except from a steam or naphtha launch.

I have assisted Mr. Delano two days, and have spent several days

and nights looking after the violaters of the fish and game laws ; and I think if more deputies were paid, so that they could give their whole time to the enforcement of the laws, they would soon put an end to the wholesale destruction of fish and game that is now going on.

I respectfully ask for a reappointment.

Very respectfully yours,

CHARLES N. HUNT,
Deputy.

PROVINCETOWN, Nov. 4, 1897.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :—Herewith please find my report as deputy commissioner for 1897.

I have visited the various towns in my district, and found the laws were generally observed by fishermen and sportsmen. I have received but three complaints for violation of the game law, two for illegal shooting of tern and one for shore birds. Upon investigation of the latter, and with the assistance of deputy Chadwick, succeeded in making two arrests, and they were fined \$35 for assault on officers.

Quail are plenty on the Cape. There have been more seen during the summer and early fall than for some years. On April 6 I put out four pheasants in the woods of Provincetown, and they were seen during May and July, also in September with their young, and appear to be doing well.

Lobster fishing, while it is carried on only in a small way, appears to be increasing in Cape waters, and this season has been better than in years past.

Traps and pounds have hardly had an average catch of mackerel and herring, and the same will apply to net fishermen. Have had no report of violations of the fish laws.

Yours respectfully,

S. B. RICH.

NORTH ATTLEBOROUGH, MASS., Nov. 6, 1897.

HON. E. A. BRACKETT, *Chairman.*

DEAR SIR :—I respectfully submit my report as deputy commissioner of fish and game in this department in 1897.

Game has been fairly plentiful, especially rabbits, squirrels and partridges. Quail have been seen more frequently than usual, but are far from being abundant.

For some reason, perhaps owing to the great quantity of fish taken during the winter through the ice, fishing has been poor during the season.

Occasional Sunday shooting has been reported, otherwise little fault can be found relative to the violation of the fish and game laws in this vicinity. Fishermen and hunters are alike interested in having the laws observed. Careful observation has not discovered a single snare for partridges.

The work done by the commission in stocking the great ponds with white perch under the law of this year, for that purpose receives general commendation, and it is doubtful if anything in the province of the commission could give more general satisfaction to the public. The people are thereby furnished with a valuable food fish, and trout are in some degree protected. Hence, there is a feeling that a larger number of these fish should be put in all such large ponds as those here stocked.

There have been no fines imposed as yet.

Very respectfully yours,

C. C. PECK,
Deputy.

LYNN, MASS., Nov. 2, 1897.

To the Commissioners of Inland Fisheries and Game.

GENTLEMEN:—I respectfully submit the following as a result of my work in enforcing the fish and game laws for the season of 1897:—

I received my appointment June 8, 1897, and since that date have used the most of my time in cruising the suburbs of Lynn, Salem, Beverly, Wenham, Ipswich, Rowley, Boxford, Topsfield, Middleton and Andover. I have not found any new snares in Middleton or Andover this season, and I do not think the parties who have made a business of snaring in these towns are at it this season, for I have located them, and have watched them closely from August 10 to September 20. I received several complaints from parties in Lynn that the woodcock and quail law was continually violated in the months of July and August, but I could not attend to it close enough to get evidence to arrest, as I had other business to attend to. I cannot see how the fish and game can derive any protection in Massachusetts unless the deputies make a business of it, and are paid a liberal salary, and I want to say this, unless deputies are appointed to work at this business under a liberal salary, they cannot do justice to the protection of the fish and game.

I have travelled and hunted the game district of this county for fifteen years, and I claim to be somewhat acquainted in that line. My report for quail, woodcock and partridge this season does not

point to the abundance but to the scarcity of partridge especially ; and I have taken particular notice, where I found several covies of quail last season I have been able to find two or three covies only.

My arrests for 1897 were 2 ; convictions, 1 ; cases given away, 2 ; fines imposed, \$15.

Names of arrests : Mr. Wm. Dole, West Newbury, three short lobsters, \$15 ; Mr. Henry Morse, hotel keeper, Baker's Island, Salem, Mass., fifty mutilated raw lobster tails. I lost the case by not having counsel. The defendant admitted that he had one hundred raw lobster tails, and that he was going to fry them ; still Judge Safford discharged him, saying he could not see where I had evidence enough to convict.

Respectfully yours,

T. C. WILSON,
Deputy.

WORTHINGTON, MASS., NOV. 8, 1897.

EDWARD A. BRACKETT, *Chairman Board of Commissioners of Inland Fisheries and Game.*

DEAR SIR : — In replying to your request to forward a report from this town, would say that it gives me much pleasure to state that there has been a marked improvement in the observance of the fish and game laws in this town the past season, especially as relates to the sale of trout less than the prescribed legal length (laws of 1892), which has been a too common occurrence in this section for the past six or eight years ; but since my appointment as warden I have not known of a single sale of small fish. Our mountain streams are the natural spawning grounds of the trout, but without protection they amount to but little, and, if I understand the present laws, there is nothing in them to prohibit the catching of trout, no matter how small they may be. An Act of Congress touching on that point might do a little good. Our streams have not yielded as many fish this season as in years past.

Game. — Ruffed grouse or partridge are very scarce here this season, no doubt owing to the long, wet summer and the foxes, which are numerous. Gray squirrels are very plenty. Quail are increasing every year in this section, and if they could be protected for one or two seasons they would become as plenty as any game we have, but unless they are protected in some way it will be a long time before such is the case. One year ago there were a few pairs within a short distance of the writer's house ; this fall there are as many different broods, and the hunters are killing them as fast as they can find them.

The practice of snaring birds and rabbits has not been carried out to any extent except by persons on their own land, or by some mem-

ber of the family on said land. The Acts of 1887, chapter 300, allow the owners to do so, and a limited number of persons have taken advantage of the fact. If such laws were abolished, it would be another point in favor of protection.

Quite a few deer have been seen within the limits of this town for the past two seasons, but have not been killed or chased by dogs, or any attempts made to capture them in any way, so far as I have known.

I respectfully ask for reappointment as warden for the town of Worthington for the ensuing year, if deemed expedient by the honorable Board.

Very truly yours,

HORACE S. COLE.

BALDWINVILLE, MASS., NOV. 8, 1897.

EDWARD A. BRACKETT, Esq., *Winchester, Mass.*

DEAR SIR:— I beg leave to submit the following report of my work as deputy game warden:—

Since my appointment as deputy I have posted printed copies of the fish and game laws in the post-offices of Templeton, Otto River, Baldwinville and South Royalston, they being the nearest and most likely places for observation. I have caused to be printed in our local papers copies of the game laws, and asking that all violations be reported to me, and signing my name as deputy game warden. I do not think there has been any illegal killing of game in this immediate section, and I have not seen or heard of any snaring (with one exception, of which I will write you later).

There are a few deer in this and neighboring towns, probably not over twelve nor less than eight. They are quite tame and not afraid of the cars, as they are seen feeding within a few rods of the tracks. Trout and bass fishing has not been as good as in 1896. Partridges, rabbits and gray squirrels all about as plenty as in 1896. The fall flight of ducks and woodcock was almost a total failure.

I should like to be reappointed.

Respectfully yours,

H. A. PERKINS, Jr.,
Deputy Game Warden.

E. A. BRACKETT, Esq., *Chairman Fish and Game Commissioners.*

DEAR SIR:— In making my report for the year 1897 I can truly say that the fishermen as a general rule live up to the laws. There have been some very fine strings of trout taken this year from

the streams we have stocked. Grouse are about the same in number as last year. Some reports of snaring have been made, but after spending two or three days' time I could not find evidence sufficient to make out a case. The pot-hunters with dogs are worse than the snares, and it is not an uncommon day's work for a good shot to bag fifteen or twenty birds and ship them to market. Quail are more plenty than in former years; woodcock are very scarce and gray squirrels very plenty.

Respectfully,

W. H. FROST,

Deputy.

WORCESTER, Nov. 6, 1897.

MR. E. A. BRACKETT, *Chairman Commissioners of Inland Fisheries and Game.*

DEAR SIR:—I heartily agree with you in the proposed amendments of the game laws. Our Col. E. B. Stoddard has agreed to see our Senator Roe, and I have spoken to several of our Representatives on the subject.

I consider it a pleasure as well as a duty to serve as deputy, and, until you get a man better qualified for the position than myself, I will accept a reappointment.

Since my last report I have made three arrests; two, for fishing with nets, were convicted; one, for snaring partridges, was discharged. I find young partridges very scarce; the cold rains early in the summer probably killed most of the chicks.

Yours very truly,

JOHN F. CUMMING,

Deputy.

NORTH GRAFTON, Nov. 6, 1897.

MR. EDWARD A. BRACKETT, *Chairman Fish and Game Commissioners, Winchester, Mass.*

DEAR SIR:—In compliance with the instructions connected with my appointment as deputy fish and game commissioner, I respectfully submit the following report:—

I will first state that most of the killing of birds in my locality during the close season is done after January 1, especially when it happens that January is a fairly mild month. Parties go out ostensibly to hunt rabbits, but shoot every bird they can. When my appointment came it became known among those in the vicinity who shot game out of season that I had been selected to look after those

who violated the law, and several of them came to know how far I should carry the matter in their especial cases, providing I caught them. My reply invariably was, to the full extent of the law. The effect has been that little if any shooting has been done in this vicinity till the season opened, consequently I have made no arrests.

I have had four complaints made to me of boys robbing song birds' nests, and upon advice from Mr. Buffington I interviewed their parents, instead of bringing them into court, which had the desired effect of putting a stop to the whole business. I also did the same with complaints of seven boys who were shooting robins with a Flobert rifle. The result has been entirely satisfactory.

In regard to fish in this locality, there has been so much seining for the last five years that it is next to impossible to catch enough in a legitimate way to make a decent fry for a family, be it ever so small, where a few years ago one could catch all he wanted in a short time. The seining is done mostly by Swedes, who are very cunning in the art. I fail to see how it is to be stopped except by making some kind of arrangement whereby a man is to be paid for his time in watching them, instead of receiving a portion of the fine. For instance, in my particular case I spent night after night on the ponds watching for seiners, and, as I was not fortunate enough to catch them in the act, I received nothing for it. But let me step aboard the cars some morning to be gone evidently for the day, and I would not be gone two hours before there would be from one to four seines in the water within a mile of my house (I live at the lower end of Lake Quinsigamond). And yet I have spent all the time in the matter I felt that I could afford to, for nothing.

And in regard to game, with the exception of rabbits, it is becoming more scarce every year, for the reason that there are young men coming on every year that are taking to hunting, and no way to furnish the deficit in the amount of game that these extra number of hunters kill off. The only way I can see out of it is to make the open season shorter, I suggest, from October 15 to December 15.

JOHN F. MITCHEL.

MILFORD, MASS., NOV. 5, 1897.

HON. E. A. BRACKETT, *Chairman of Board of Commissioners of Massachusetts Fish and Game.*

DEAR SIR: — I have to report a scarcity of partridge in this vicinity, but woodcock have been more than usually plenty. As to the quail, I never saw as many broods, or as large ones, as this season. There have been no cases before the court for violation of game laws. I

have warned two parties whom I suspected of using ferrets, and one for snaring. The law against Sunday shooting is broken oftener than any other, and a vigorous enforcement is all that will ever stop it. The pheasants are doing well, and I shall liberate the surplus of males very soon, as they will fight if confined together.

I wish to state again, as I did last year, the general desire for a shorter open season on all game at the same time.

I shall leave the question of my reappointment with you.

Yours respectfully,

W. N. PRENTISS.

MILFORD, MASS., NOV. 8, 1897.

MR. E. A. BRACKETT, *Chairman of Commissioners of Fish and Game.*

DEAR SIR:—I submit the third annual report, which differs little from previous ones.

I have given as much attention to the work as I could in my spare time. I know that the killing of birds out of season has decreased considerably in our vicinity, yet the practice is carried on to a considerable extent, and will be, I believe, until every county has a salaried deputy to look closely after the work.

As usual, pot-hunters are busy, as formerly, and plenty of birds are sacrificed every year through mercenary motives, of which the markets of every town and city afford abundant proof.

I wish to repeat what I said last year relative to the law on partridge. I believe the birds should be protected, as quail, until October 15.

Respectfully,

MORTIMER EDWARDS.

SOUTHBRIDGE, MASS., NOV. 9, 1897.

E. A. BRACKETT, Esq.

DEAR SIR:—I have the honor to report that game has been usually plentiful in this section, with the exception of partridge, which have disappointed the predictions generally made by the best informed during the spring, that these birds would be more abundant than for many years.

There has been less illegal shooting and fishing done here than in previous years, and prosecutions have been few.

Some fine catches of trout in local streams were made in the early open season, and the stocking of several streams has apparently been helpful to this result. More of this should be done each year, to keep

the streams that were formerly excellent fishing grounds what they should, and may be, by a little attention to them.

Preparations are being made to stock the wooded sections of this locality with the Belgian rabbit, in the early spring, and also for breeding the Mongolian pheasant, several pairs of which have already been let loose.

The ferret and the snare are employed for the destruction of game, and it would be a beneficial act to provide by law penalties for keeping or finding of ferrets, as *prima facie* evidence of an intent to sell or use for the unlawful purpose of taking game.

The present statute makes *shooting* on the Lord's Day an offence, but does not in terms punish hunting. It is held by some courts that, in the absence of proof of the discharging of guns, one cannot be punished for hunting on the Lord's Day. It would seem, therefore, that the statute should be changed to make hunting on that day a crime, as well as *shooting*, and the evidence of a person being found in the woods or fields on the Lord's Day with a gun, *prima facie* proof of *hunting*.

It has been reported that in one town in Connecticut, on the borders of the Massachusetts line, two boys have this season maintained several hundred snares, and captured by these over five hundred partridges, which were sold in the markets, and a very large number of rabbits, and have thus far eluded the game wardens. As a means of deceiving, on a catch of one or two dozen of birds these boys string them in a bunch, and at a distance send charges of small shot at them, to give them the appearance of having been taken with the gun instead of the snare. Verily there is work for an efficient paid deputy game warden, to protect game from unlawful destruction in this section, and I earnestly hope your Board will secure legislation to that end.

Respectfully yours,

J. W. ROBINSON.

WEBSTER, MASS., Nov. 11, 1897.

MR. BRACKETT.

DEAR SIR: — Agreeably to yours of October, I comply.

Three men, for net fishing in pond, were fined twenty dollars each; one, for killing a Mongolian pheasant, twenty dollars. This was a male bird, with very beautiful plumage, and large, one which Mr. Eddy let go with the other three last spring. I had the party here to-day before the court, and the Judge fined him twenty dollars. I received \$1.58 for my trouble. Now I think I am entitled to one-half the fine, ten dollars. It does not pay to spend time in this business for

simply costs of court. Please let me know if I am not entitled to one-half the fine.

I would make the fines much larger for ferreting and snaring, one-half to go to officer. There are several ferret hunters here who claim they go to Connecticut to hunt; as we join the Connecticut line, I would prohibit the keeping of ferrets, or would have the laws such that the finding of one on the person in field would convict. It is no easy matter to catch a party in the act.

The fish and game laws generally in this vicinity have been regarded. If possible, I would have all fish and game protected for three years. They are nearly cleaned out in this section. Please reappoint, if desirable.

Very truly yours,

RUFUS C. HALL,
Deputy.

NORTH BROOKFIELD, MASS., NOV. 5, 1897.

Commissioners on Inland Fisheries and Game.

GENTLEMEN: — The laws in regard to fish and game have been well observed in this section this season, partly owing to the Rod and Gun Club, the Quacumquasit Fish Association, and partly to the knowledge that there is a warden here.

Both partridge and quail are very plenty, more, I think, than for years. As to game fish, the Quacumquasit Fish Association are doing a grand work as to stocking one of our lakes, and should, I think be given all the encouragement possible from the State.

I shall be pleased to be reappointed, if the commissioners think I can fill the bill.

Very respectfully yours,

T. J. MANLY,
Deputy.

GOSHEN, MASS., NOV. 6, 1897.

MR. E. A. BRACKETT.

DEAR SIR: — I herewith forward my report as deputy commissioner for the year.

Trout have, I think, been a little more plentiful than usual. Ruffed grouse are not as numerous this fall as last. This, I think, is owing to our cold and wet spring, which was very unfavorable to hatching and to young birds. Quail are about the same as usual. Woodcock are more plentiful, so far as I can learn from sportsmen.

Little violation of game laws has come to my notice. There has been very little Sunday hunting or fishing. I have made but two

arrests, both for fishing on posted land. As they were the first offences, they were allowed by the interested parties to enter a plea of *nolo contendere*, their cases continued or placed on file, and sentence suspended.

Have not been able to do the work full justice, as the time I could afford to give has been limited, but think if a man could spend his whole time in the work it would be of great advantage, as this is undoubtedly one of the best fish and game regions in the State.

There is a rapidly growing sentiment among sportsmen against the sale and snaring of game in this section, which I believe to be the worst enemies of the birds; and to the end of prevention a paid deputy would be almost a necessity, as very few men would be able or willing to give as much time as would be required, and also pay their own expenses.

Yours very truly,

SHERIDAN E. BARRUS.

LANCASTER, MASS., NOV. 8, 1897.

MR. EDWARD A. BRACKETT, *Chairman of Board of Commissioners of Fish and Game.*

DEAR SIR: — During the past season I have attended to my duties as deputy to the best of my ability.

There has been but little alleged violation of existing laws brought to my attention. Have stopped parties from hunting on Sundays, but all the first offence, so made no arrests.

From what I can learn, quail are plenty. Partridge are scarce, either from not hatching or on account of so much wet weather last spring and summer. According to all reports, woodcock are more plenty than last season. Gray squirrels are plenty.

No doubt the laws have been violated in localities which have not come under my notice.

All of which is respectfully submitted,

ANDREW J. KENNEDY,

Deputy Commissioner.

PITTSFIELD, MASS., NOV. 8, 1897.

MR. E. A. BRACKETT, *Chairman Commissioners on Inland Fisheries and Game.*

DEAR SIR: — In reply to notice received, I submit the following report for the western part of Massachusetts: —

Trout fishing has been of the best; for the past season we have had

very large catches. For birds, woodcock shooting never was better. Partridges are quite plenty now, though during the first of the season we did not find very many, as they were high in the hills. Pot-hunters still do some crooked work, though not as much as in seasons past; are rather shy, but there are some I am trying for, and hope to be able to get soon. One trouble among birds is the fox, which is quite numerous here, and I think a small bounty on them would be for the good of our birds.

Mr. Crane has put out some pheasants, which are doing well. There are quite a number of young birds in and around our country; we are looking after them. A few have been killed by some one; we have found one or two that were killed and hung on trees.

During the year I have made two arrests, one for Sunday shooting and one for Sunday fishing. The fines amounted to twenty dollars and costs. I have also assisted Captain Proctor in the Harlsville sawdust case. The Follett case is still in court; the last time it came down from the supreme court the papers could not be found, whether lost or stolen is unknown. We hope to get some decision in the January term of court; our district attorney is determined to push it to the bitter end.

I have captured six lines and quite a number of snares, at about the last of our fishing through the ice in the spring. I found on Sunday twenty-seven tips set in Onota Lake, with six men around a fire a short distance from there. No one owned them, so I took them up and have them now in my possession. I have taken up and destroyed three nets and one trap for taking trout.

There was very little if any shooting before the season opened, and I have not had as many reports about the Sunday shooting and fishing as before. The outside people have taken hold with us, and we have had better support than heretofore. There are now some reports about snares, but they are back some ways; shall look after them.

Yours respectfully,

BENJAMIN SMITH,

Deputy Commissioner.

DALTON, MASS., Nov. 3, 1897.

Honorable Commissioners on Inland Fisheries and Game.

GENTLEMEN:—Since my appointment as deputy, in April last, I have done what I could to protect the fish and game throughout the territory assigned me. I have had but one complaint of illegal taking of game outside of Dalton and vicinity, it not being generally known that I was a deputy. That case I investigated, and found at least twenty-five snares set for partridge. I spent two days and two nights

watching for the parties, but was not able to locate them. I destroyed the fences and took away the snares. There has been no further trouble in that locality. I have spent considerable time in travelling through the woods, and have found and destroyed quite a number of fences and snares, but could not apprehend the guilty parties. It has, however, put a stop to illegal killing of partridge in those sections, and I am well satisfied that watchfulness on the part of the deputies will put a stop to pot-hunting in Massachusetts.

So far as I can learn, trout fishing has been better than the average during the past season, and fishermen reported some extra catches. I received two cans of trout, which I placed in the small brooks that flow into the Wahconna Falls stream, which is one of the best trout streams I know of. Partridge and woodcock are reported as being fully as plenty as for many years.

In order to secure good and thorough protection to fish and game, and proper enforcement of the game law, it would seem that the deputies should be suitably paid, and I believe that a paid deputy in each county would materially aid in the enforcement of the game law.

I have spent seven days and two nights (using my own team to carry me from place to place), trying to stop pot-hunting and illegal taking of game.

Very respectfully,

E. H. PIERCE,
Deputy.

[E.]

LEGISLATION.

Acts of 1897.

[CHAPTER 110.]

AN ACT RELATIVE TO FISHING IN THE MERRIMAC.

Whoever takes shad or alewives in that part of the Merrimac River where the tide ebbs and flows, by the use of a gill net of any description, or of a sweep seine having a mesh which stretches less than one and three-quarters inches, shall forfeit twenty-five dollars for each offence, and in addition shall forfeit the fish taken and the apparatus used.

Chapter two hundred and one of the acts of the year eighteen hundred and ninety-three, and section one of chapter eighty-eight of the acts of the year eighteen hundred and ninety-five are hereby repealed. [*Approved March 2, 1897.*]

[CHAPTER 111.]

AN ACT TO REPEAL THE ACT TO PROHIBIT THE SHOOTING OF WILD FOWL IN THE WATERS IN AND AROUND NANTUCKET.

Chapter two hundred and forty-six of the acts of the year eighteen hundred and eighty-six, entitled, "An Act to prohibit the shooting of wild fowl in the waters in and around Nantucket," is hereby repealed.

This act shall take effect upon its passage. [*Approved March 2, 1897.*]

[CHAPTER 140.]

AN ACT FOR THE PROTECTION OF SMALL GAME ON CAPE ANN.

Whoever takes or kills a rabbit, gray squirrel or chipmunk, or any land bird, except the English sparrow, within the limits of that section of this Commonwealth bounded by the Squam river, Ipswich bay, the Atlantic ocean, Massachusetts bay and Gloucester harbor, at any

time within five years from the passage of this act, shall be punished by a fine of twenty dollars for every rabbit, squirrel, chipmunk or bird so taken or killed. [*Approved March 8, 1897.*]

[CHAPTER 181.]

AN ACT RELATIVE TO THE TAKING OF EELS IN OYSTER POND IN THE TOWN OF EDGARTOWN.

Be it enacted, etc., as follows:

SECTION 1. The owners of the land in the town of Edgartown lying between Oyster pond in said town and the ocean, and bordering on said pond, may during the months of October and November in each year set eel-pots or weirs extending from their said lands into said pond, and may, during said months, by means of said pots or weirs take eels from the waters of said pond.

SECTION 2. All acts or parts of acts inconsistent herewith are hereby repealed.

SECTION 3. This act shall take effect upon its passage. [*Approved March 19, 1897.*]

[CHAPTER 208.]

AN ACT TO PROVIDE FOR THE STOCKING OF THE GREAT PONDS OF THE STATE WITH FOOD FISH.

The commissioners of inland fisheries and game, upon petition of thirty or more inhabitants of a city or town within whose limits a great pond or portion thereof is situated, or upon petition of the mayor and aldermen of such city or of the selectmen of such town, shall cause the waters of such pond to be stocked with such food fish, if any, as they may judge to be best suited to the waters in which the fish are to be placed.

Said commissioners shall thereupon prescribe, for a period not exceeding three years, such reasonable regulations relative to the fishing in such pond or ponds and their tributaries, with such penalties, not exceeding twenty dollars for any one offence, as they may deem for the best interests of the public, and shall cause such regulations to be enforced.

There shall be allowed and paid annually from the treasury of the Commonwealth a sum not exceeding five hundred dollars to carry out the provisions of this act.

This act shall take effect upon its passage. [*Approved March 29, 1897.*]

[CHAPTER 288.]

AN ACT FOR THE BETTER PROTECTION OF FISH AND GAME.

Be it enacted, etc., as follows:

SECTION 1. The district police shall have authority to enforce the laws relating to inland fisheries and game, concurrently with the commissioners on inland fisheries and game.

SECTION 2. The steamer now owned by the Commonwealth and used by the commissioners on inland fisheries and game in the enforcement of the laws mentioned in section one, is hereby transferred to the district police department for use under the direction of the chief of the district police in enforcing said laws.

SECTION 3. Section two of chapter three hundred and eighty-nine of the acts of the year eighteen hundred and eighty-eight is hereby repealed.

SECTION 4. This act shall take effect upon its passage. [*Approved April 15, 1897.*]

[CHAPTER 524.]

AN ACT RELATIVE TO THE PROTECTION OF CERTAIN BIRDS.

Whoever has in his possession the body or feathers of any bird whose taking or killing is prohibited by section four of chapter two hundred and seventy-six of the acts of the year eighteen hundred and eighty-six, or wears such feathers for the purpose of dress or ornament, shall be punished as provided in said section: *provided*, that this act shall not be construed to prohibit persons having the certificate provided for in said section from taking or killing such birds; and *provided, further*, that this act shall not apply to natural history associations or to the proprietors of museums, or other collections for scientific purposes. [*Approved June 11, 1897.*]

[CHAPTER 53.]

RESOLVE TO PROVIDE FOR REPAIRING THE FISHWAY OVER THE
LAWRENCE DAM.

Resolved, That there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding twenty-five hundred dollars, to be expended under the direction of the commissioners on inland fisheries and game, for the payment of one-half of the expense of repairs on the fishway over the Lawrence dam. [*Approved April 21, 1897.*]

[CHAPTER 74.]

RESOLVE TO PROVIDE FOR REBUILDING THE STATE FISH HATCHERY IN
THE TOWN OF WINCHESTER.

Resolved, That there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding three thousand dollars, to be expended under the direction of the commissioners on inland fisheries and game, for the purpose of rebuilding the fish hatchery at Winchester in this Commonwealth. Said building shall be located on land now owned by the Commonwealth, in what is known as Middlesex Fells, provided that the necessary arrangements can be made with the metropolitan park commission; otherwise said commissioners on inland fisheries and game shall have authority to purchase land, not exceeding one acre, on which to erect said building. [*Approved May 21, 1897.*]

[F.]

LOBSTER RETURNS.

1897.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
John M. Mora, . Thomas McAafee, . A. P. Silva, . J. P. Serrilha, . Manuel P. Silvia, . M. E. Grace, . Antoine P. Silva, . Mathews P. Gile, . John Pinta, . August Brown, . Joseph Gaspey, . Antonio Ferreira, . Manuel Silvia, . M. De Rosa Dias, . Joe De Lacy, . Augustus Marks, . Antone Silva, . Custodio Goveia, . Joseph Rogers, . Antonio Vienna, . Wm. V. Corniha, . J. K. Ferreira, . Andrew Ferreira, . Joaquin Perry, . Joseph Safarino, . Peter Silvia, .	Boston, . .	3,075	139,770	2,117
J. E. Cahoon, . . .	Barnstable, . .	40	1,987	116
John Monroe, . Thomas Mason, .	Beachmont, .	100	5,642	37

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
A. B. Robinson, . .	Bay View, . .	70	1,800	—
Frank C. Leonard, . .	Bournedale, . .	53	4,084	122
Chas. C. Foster, . .	Beverly, . .	370	19,643	894
C. D. Davis, . .				
Wm. E. Bennett, . .				
Wm. H. Kennedy, . .				
Albion Frye, . .				
Chas. B. Chapman, . .				
A. L. Manter, . .	Brant Rock, . .	105	4,085	173
H. W. Tolman, . .				
J. E. White, . .				
Rodney P. Reed, . .	Chilmark, . .	155	2,696	59
Luther Atheron, . .				
F. N. Smith, . .				
L. E. Cottle, . .				
Onslow Stewart, . .				
Wm. S. Mayhew, . .				
E. S. Gould, . .	Chatham, . .	1,641	31,416	986
F. B. Nickerson, . .				
Chas. W. Jones, . .				
Wm. R. Bloomer, . .				
J. F. Eldridge, . .				
Sylvester Eldridge, . .				
F. Bloomer, . .				
W. F. Hitchings, . .				
G. W. Bloomer, . .				
Arthur Baker, . .				
Robert Ellis, . .				
Oscar M. Gould, . .				
Reuben T. Bearse, . .				
Dan C. Harding, . .				
Richard Gould, . .				
W. A. Bloomer, . .				
F. W. Baker, . .				
Geo. W. Crowell, . .				
Geo. N. Eldridge, . .				
J. D. Bloomer, . .				
A. L. Ellis, . .				
H. F. Gould, . .				
A. S. Hammond, . .				
S. Patterson, . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Charles Rogers, .	Chiltonville, .	513	32,423	408
Charles Boutin, .				
L. S. Thurston, .				
George Boutin, .				
W. H. Phinney, .				
George Atwell, .				
R. F. Swift, .				
Augustus Hadaway, Jr.,				
H. S. Sampson, .				
John W. Sampson, .				
Henry A. Jordan, .	Cohasset, . .	890	58,813	465
B. F. Hodges, .				
Manuel P. Valine, .				
Joseph A. Silvia, .				
Manuel S. Thomas, .				
J. J. Grassie, .				
Joseph F. Bandura, .				
Oscar Anderson, .				
Levi Cadoza, .				
Manuel S. Almas, .				
Andrew Peterson, .	Cuttyhunk, . .	655	33,655	1,410
Robert Ainslies, .				
J. M. Smith, .				
Charles Anderson, .				
Oscar H. Stetson, .				
J. W. Tilton, .				
Frank Peters, .				
Robert Jackson, .				
F. M. Cottle, .				
J. H. Tilton, .				
J. F. Cornell, .	Dennis, . .	42	848	168
H. J. Allen, .				
John Manley, .				
J. E. Johnson, .				
Russell W. Rotch, .				
Joshua Keeney, .				
D. P. Bosworth, .				
Samuel E. Jackson, .				
C. C. Allen, .				
Ansel P. Howes, .	Dartmouth, . .	117	3,686	239
George E. Hall, .				
Tallman & Gifford, .	Dartmouth, . .	117	3,686	239
James H. Butts, .				
J. A. Manchester, .				
Lewis Anderson, .				

Lobster Returns — Continued

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Isaac Symmes, . . .	South Duxbury, .	406	35,383	233
Frank E. Philipps, . .				
F. E. Wadsworth, . .				
Frank C. Chandler, . .				
James E. Kelley & Co.,				
O. C. Hunt, . . .				
Clarence Smith, . .				
C. E. Peterson, . .				
George F. Freeman, . .				
W. E. Peterson, . .				
Edmund Marsh, . .	Edgartown, .	80	5,970	471
Edwin W. Cook, . .				
John Bunker, . . .	Falmouth, . .	109	3,467	617
H. O. Hillman, . . .				
A. L. Bowman, . . .				
M. C. Stuart, . . .				
Fernando Josef, . .				
Daniel C. Jennings, .				
W. A. Grew, . . .	Fairhaven, . .	30	288	75
E. E. Baker, . . .				
H. Nelson Wilbur, . .	Fall River, . .	75	1,067	46
Joseph H. Tripp, . .				
E. D. Rust, . . .	Gloucester, . .	450	39,337	524
D. N. Mehlman, . .				
Albert Parsons, . .				
Henry W. Nelson, . .				
E. F. Parsons, . .				
Joseph Douglass, . .				
Charles Nason, . .				
Melvin Parsons, . .				
Joseph Parsons, . .	Gay Head, . .	55	3,045	181
C. H. Ryan, . . .				
F. A. Calvin, . . .	Green Harbor, .	749	39,030	417
Lyman Sears, . . .				
Oscar A. Chandler, . .				
W. N. Englested, . .				
Chas. R. Peterson, . .				
Thomas Pezzy, . . .				
Henry Taylor, . . .				
Wm. H. Tallman, . .				
Wm. M. Cushing, . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
B. P. Williamson, .	Green Harbor, .	749	39,030	417
E. R. Lapham, .				
H. P. Tallman, .				
Chas. B. Cushing, .				
George Delano, .				
Wilfred Keene, .				
O. S. Crosby, .	Hyannis, . .	75	3,006	58
T. F. Phinney, .				
Daniel McDonald, .	Hull, . . .	565	33,195	369
George L. Hatch, .				
Alphonso Cleverley, .				
A. B. Cleverley, .				
E. F. Pope, . . .				
Andrew Galliano, .				
B. F. Pope, . . .				
Frederick Smith, .				
John Reed, . . .				
Charles A. Bailey, .	Ipswich, . .	110	5,501	99
Henry L. Cook, . .				
Rust & Grant, . . .				
W. B. Atkinson, . .				
A. W. Montgomery, .				
Geo. H. Woodbury, .	Lanesville, . .	111	3,916	128
Elias Haraden, . .				
Addison Woodbury, .				
A. W. Riley, . . .				
David Worth, . . .	Magnolia, . .	226	8,802	212
J. B. Knowlton, . .				
John G. Burnham, .				
H. K. Story, . . .				
W. S. Douglass, . .				
Charles Sargent, . .	Manchester, .	132	4,656	69
J. H. Dow,				
L. O. Sargent, . . .				
Thomas Dow,				
Chandler Lewis, . .				
John H. Heath & Co.,				
Joseph G. Stacey, .	Marblehead, .	924	61,266	2,053
S. K. Stone,				
J. W. Smithurst, . .				
James S. Stone, . . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Wm. R. Russell, . Benjamin H. Swett, . C. H. Smithurst, . George Hooper, Jr., . Richard Farry, . John E. Brown, . Richard F. Russell, . R. G. H. Roundy, . Wm. F. Allen, . Richard Millett, . Wm. H. Tutt, . Wm. J. Dodd, . J. H. Hennessey, . John Hanson, . J. W. Florence, . John F. Adams, . John W. Mace, . Stephen Q. Smith, . Sans Stanley, . W. T. Gardner, . Daniel Sweeney, .	Marblehead, .	924	61,266	2,053
Lilburne Hiller, . Wm. L. Richmond, .	Mattapoissett, .	33	540	63
A. P. Tilton, . Chas. H. Gurney, . Morris Cleveland, . Roswell K. Briggs, .	Marion, .	184	6,950	211
Wm. H. Peterson, . Clark W. Holmes, Jr., Chas. Wakefield, . Rufus Ellis, . L. B. Briggs, . Wm. Harlow, . A. L. Holmes, . Frank R. Peterson, . Thomas L. Blake, . C. H. Fisher, . Cornelius Briggs, Jr., Comfort H. Dixon, . W. J. Nightingale, . Thomas Stevens, . Samuel Bartlett, . J. H. Valler, . Manuel L. Chandler, A. C. Sampson, .	Manomet, .	1,256	76,071	1,293

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Eggs-bearing Lobsters liberated.
M. W. Dunham, . . . } Leander Small, . . . } A. A. Norcross, . . . } J. E. Nickerson, . . . }	Nantucket, . . .	927	24,488	837
J. W. Taylor, . . . } G. W. Taylor, . . . }	Nahant, . . .	29	926	27
F. H. Hayden, . . . } Caleb Hayden, . . . }	Orleans, . . .	47	1,605	56
W. C. Snow, . . . } J. H. Little, . . . } A. W. Newcomb, . . . } J. C. Luntin, . . . } Alfred J. Emery, . . . } J. D. Smith, . . . } John W. Savage, . . . } W. H. Kenney, . . . } F. M. Powley, . . . } George Freeman, . . . }	Provincetown, . .	345	13,424	1,872
James H. Bagnell, . . } Samuel H. Benson, . . } James Deacon, . . . } Samuel P. Burgess, . . } J. P. Thurston, . . . } R. W. Thomas, . . . } A. M. Watson, Jr., . . } G. W. Tarr, . . . }	Plymouth, . . .	291	27,055	279
C. N. Morgan, . . . } Fred Johnson, . . . }	Pigeon Cove, . .	68	2,982	16
C. P. Peterson, . . .	Quincy, . . .	45	3,043	13
Geo. E. Wendell, . . .	Rockport, . . .	75	6,443	240
C. B. Bacon, . . . } Jesse D. Smith, . . . } E. W. Haines, . . . } Chas. H. Parker, . . . } Chas. E. Hoxie, . . . } Freeland Perry, . . . } Herbert McCornnell, . . }	Sandwich, . . .	228	4,538	360
Edward A. Greenough, . } C. H. Berry, Jr., . . . } G. W. Berry, . . . } John Clark, . . . } Chas. S. Brown, . . . } H. G. Tucker, . . . }	Salem, . . .	286	11,091	286

Lobster Returns—Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg- bearing Lobsters liberated.
Arthur H. Gibbs, . .	Sagamore, . .	50	1,561	60
W. J. Jones,	Swampscott, . .	168	15,429	108
Edward Marsh, Jr., .				
G. A. R. Horton, . .				
R. A. Douglass, . .				
George F. Edson, . .	Scituate, . . .	675	30,838	550
E. P. Pratt,				
Charles De Costa, . .				
Oscar Palmgreen, . .				
Thomas Flynn, . . .				
J. K. Gannett, . . .				
Daniel Ward,				
Francis Mulkerne, . .				
Jesse W. Spooner, . .				
Robert Ohearne, . . .				
Everett Litchfield, .				
Thomas Dwyer, . . .				
Daniel W. Ward, . . .				
Eugene Pratt,				
R. W. White,				
A. E. Reed,	Squibnocket, .	85	2,450	25
A. T. Poole,				
L. W. Mayhew,				
Abel S. Souther, . . .	Salisbury, . . .	53	175	10
G. H. Luce,	Tisbury,	53	1,184	23
George W. Manter, . .				
G. A. Rogers,				
Warren Freeman, . . .	Truro,	61	960	26
John C. Myricks, . . .				
C. H. Collins,				
Herbert Crocker, . . .	Vineyard Haven, .	118	2,240	130
Eugene L. Chadwick, .				
George E. Dolby, . . .				
Frank C. Vincent, . . .				
James R. Cleveland, .				
Fred M. Chase,				
H. W. McLellan, . . .				

Lobster Returns — Concluded.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
J. Henry Kelley, . Alfred Nickerson, . N. C. Phinney, . J. F. Cook, . Thomas Hinckley, . Nathan N. Bearse, . O. C. Grinnell, . F. R. Gifford, . J. K. P. Pardum, . P. M. Stewart, . L. L. Adams, . B. E. Stuart, . John J. Veeder, . Walter Nickerson, .	Wood's Holl, .	240	9,349	1,307
Geo. A. Gifford, . Thos. J. Brightman, .	Westport, . .	75	2,006	87
John Wadsworth, . W. E. Wyman, . J. B. Wyman, .	Winthrop, . .	185	23,364	600
Roland Kelley, . . Herbert Lovell, . .	Yarmouth, . .	55	1,613	82
Totals (men, 388),		18,829	896,273	23,719

Comparisons of Returns of Lobster Fisheries.

YEAR.	Number of Men.	Number of Traps.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Increase of 1894 over 1893, . . .	54	3,291	—	2,156
Decrease of 1894 below 1893, . . .	—	—	52,898	—
Increase of 1895 over 1894, . . .	—	—	—	—
Decrease of 1895 below 1894, . . .	48	3,098	140,469	554
Increase of 1896 over 1895, . . .	76	4,836	39,031	—
Decrease of 1896 below 1895, . . .	—	—	—	3,873
Increase of 1897 over 1896, . . .	—	—	—	—
Decrease of 1897 below 1896, . . .	65	3,212	99,123	6,751

GILL AND SWEEP NETS—1897.

GILL AND SWEEP NETS.

1897.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Jonathan Morrill,	Amesbury, . . .	24	-	-	-
Hubert Lovell,	Barnstable, . . .	-	201,200	-	-
F. G. Kelley,					
Thomas James,	Bay View, . . .	-	-	20,850	-
Chas. N. Simmons,	Berkley, . . .	660	310,000	-	-
J. N. Babbett,					
James H. Newcomb,	Brewster, . . .	-	93,397	-	-
Wm. W. Hallett,	Centreville, . . .	-	-	-	-
Wm. C. Kelley,					
Augustus A. Hadaway,	Chiltonville, . . .	-	68,332	-	3,603
B. F. Hodges,					
Robert Ainsley,	Cohasset, . . .	-	-	240,000	-
Joseph Jason, Jr.,					
Geo. W. Crowell,	Chatham, . . .	23	866	299,061	1,164
Robert Ellis,					
Rufus F. Nickerson,					
E. S. Gould,					
Reuben T. Bearse,					
C. C. Nickerson,					
Wm. R. Bloomer,					
J. F. Eldridge,					
Wm. H. Patterson,					
Albert W. Smith,					
John S. Ryder,					
W. A. Bloomer,					
Richard Gould,					
Geo. W. Bloomer,					
W. F. Hitchings,					
Geo. N. Eldridge,					
J. D. Bloomer,					
H. F. Gould,					
A. S. Hammond,					
Seymore Patterson,					
Francisco Bloomer,					
Chas. N. Simmons,	Dighton, . . .	778	302,000	-	-
Joseph H. Long,	Dennis, . . .	-	23,068	-	307
Frederick A. Long,					
Ansel P. Howes,					
A. T. Chase,					
W. E. Greenleaf,					
F. H. Mayo,					
Geo. G. Snow,					
John H. Jones,	Falmouth, . . .	-	7,900	-	-
E. F. Parsons,	Gloucester, . . .	-	-	32,111	-
Joseph Parsons,					
E. P. Goodwin,	East Haverhill, . . .	17	392	-	-
Edwin Taylor,	Hyannis, . . .	-	-	-	-
Benjamin H. Doane,	Harwich, . . .	-	-	-	-
A. W. Riley,	Lanesville, . . .	-	-	11,894	-

GILL AND SWEEP NETS.

1897.

Striped Bass.	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	-	-	2,796	72	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	50	-	32	-	-	-	3,564	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	201
-	-	-	-	-	-	1	1,055	-	-	-	-	-
370	-	11	-	-	3,169	16	27,094	335	157	-	14,300	456
-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	9	-	-	-	-	30,781	3,474	-	760	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	150	-	16,532	-	-	-	8,000	750
1	-	-	-	-	-	-	-	-	-	-	-	-
-	-	10	-	-	-	-	-	117	-	-	-	-
-	-	-	-	-	-	-	2,128	-	-	-	-	-
-	-	-	-	-	-	-	2,174	-	-	-	-	-

Gill and Sweep Nets—Continued.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
T. D. Collins, }	Manomet, . . .	-	22	37	2,640
L. B. Briggs, }					
Cornelius Briggs, Jr., . . . }					
Rufus Savery,	Marion, . . .	-	65,281	-	-
Jones Brothers, }	Manchester, . . .	-	-	5,225	-
Chandler Lewis, }					
Benjamin F. Stevens,	Marblehead, . .	-	-	-	1,683
Henry C. Short, }	Newburyport, . .	-	23,222	6,165,000	30,000
Frank E. Hunt, }					
Joseph Thurlow, }					
C. A. Caswell, }					
Nestor L. Thurlow & Co., . . }					
Arthur P. Dunham, }	Nantucket, . . .	-	22	-	1,190
W. I. Fisher, }					
Jesse H. Eldridge, }					
Geo. H. Hamblin, }					
H. E. Dunham, }					
Edgar W. Ramsdell, }					
A. H. Adams & Co., }					
Chas. B. Cathcart, }					
Marcus W. Dunham, }					
Asa W. Small, }					
Geo. M. Winslow, }					
Leander Small, }					
Arthur J. Barrett, }					
Geo. E. Thomas & Co., }					
C. S. Glidden & Co., }					
J. S. Watkins, }					
Manuel Thomas & Co., }					
Manuel J. Francis, }					
Sylvester L. Ellis, }	Provincetown, . .	10,002	24,500	2,077,427	6,208
J. H. Little, }					
H. L. Mayo, }					
Wm. M. Ewell, }					
Wm. M. Wareham, }					
W. C. Snow, }					
Stephen F. Atwood, }					
Frank N. Days, }					
Alfred A. Mayo, }					
James F. Atkins, }					
John Swatz, }					
J. G. Rand, }					
Geo. H. Hurlburt, }					
Joseph Ellis, }					
D. L. Smith, }					
Jackson R. Williams, }					
Luther P. Hatch, }					
George Lewis, }					
Geo. A. Brown, }					
E. H. Tillson, }					
J. W. Fuller, }					
George Crosby, }					
E. A. Whelden, }					
James L. Worth, }					
James D. Bangs, }					
Frank N. Atwood, }					
Henry Atwood, }					
Frank Days, }					
Manuel Taryis, }					
Jonah Newcomb, }					
J. E. Weeks, }					
John S. Smith, }					
Zephaniah Rich, }					
E. W. Smith, }					
C. H. Emery, }					
Isaac Tyler, }					
Jesse Ghen, }					

Gill and Sweep Nets — Continued

Striped Bass.	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish
-	-	-	-	-	40	-	892	-	-	-	-	1,890
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	6,150	-	-	-	-	12,000
-	-	-	-	-	807	-	11,659	-	-	-	1,410	-
-	-	-	-	-	-	-	6,000	-	-	-	-	839,431
2	4,363	426	1	2	355	2,560	9,382	38,672	-	-	66	7
1,511	-	1	-	-	925	218	216,143	30,709	-	437,744	11,126	61,092

Gill and Sweep Nets—Concluded

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Jonathan Sparrow,	Provincetown, . .	10,002	24,500	2,077,427	6,208
Nathaniel W. Freeman,					
R. W. Cook,					
H. N. Smith,					
John Dolan,					
J. D. Smith,					
Joseph Patrick,					
R. O. Kelley,					
A. J. Emery,					
Joseph H. Emery,					
Geo. W. Freeman,					
Boniface Silvey,					
J. C. Lurten,					
R. G. Tarrant,					
Prince Freeman,					
Reuben Ryder,					
John K. Cobb,					
Bangs & Lewis,					
John W. Savage,					
Manuel Williams,					
E. Q. Weeks,					
Geo. H. Lewis,					
Thomas J. Lopes,					
B. R. Kelley,					
Manuel P. Vera,					
Manuel Carter,					
A. L. Daggett,					
Daniel Williams,					
Wm. Dyer,					
Martin Silva,					
Wm. Harlow,	Plymouth,	-	-	-	-
Gustavus King,	Raynham,	1,512	330,994	-	-
G. B. & E. Williams,					
Gilbert Rich,	Rockport,	-	2,705	9,951	3,100
James Edson,	Scituate,	-	637	255	9,992
J. K. Gannett, Jr.,					
E. W. Haines,					
Jesse D. Smith,					
Charles D. Bacon,	Sandwich,	-	1,322	983	264
S. F. Cashin,					
Charles H. Parker,					
Charles E. Hoxie,					
Freeland Perry,					
F. W. Luther,	Somerset,	28	104,000	-	-
Chas. N. Simmons,					
J. F. Stevens,	Truro,	10	48	287	1,087
P. L. Paine,					
W. W. Freeman,					
N. O. Atwood,					
John C. Myrick,					
Thomas D. Smith,					
I. Atwood,					
O. H. Collins,					
E. L. Doyle,					
H. P. Macomber,	Taunton,	91	88,441	-	-
Wm. P. Doane,	Wellfleet,	-	8,800	4,000	3
J. E. Curran,					
H. F. Atwood,					
Frank D. Grinnell,	Westport,	-	2,450	-	-
Sylvanus L. Robbins,	Yarmouth,	-	14,580	-	-
Totals (176 men),	13,145	1,674,157	8,627,081	60,241

Gill and Sweep Nets — Concluded.

Striped Bass	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
1,511	-	1	-	-	925	218	216,143	30,709	-	437,744	11,126	61,092
-	-	-	-	-	-	-	130	-	-	-	-	604
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	1,424	-	-	-	58	-
-	-	-	-	-	20	-	8,452	-	1	-	21	7,731
-	-	-	-	-	-	-	4,333	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	26,895
1	-	1	-	-	21	10	6,567	770	6	111	861	4,090
-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	2	-	-	191	-	671	372	-	-	-	9,600
50	-	-	-	-	-	-	-	-	-	-	-	7,850
-	-	-	-	-	-	-	-	-	7	6	-	-
1,958	4,363	510	1	34	5,678	2,804	353,308	78,549	171	438,621	35,842	972,590

POUNDS AND WEIRS.

1897.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alwives.	Sea Herring.	Menhaden.	Striped Bass.
F. D. Atwood, . . . } F. T. Ellis & Son, . . } Fred Young, . . . } James Eldridge & Son, }	Brewster, . . .	1	123	117,251	4,706	289	537
E. P. Gibbs, . . .	Bourne, . . .	-	20	-	15,600	13,500	7
T. L. Mayo & Co., . .	Barnstable, . .	-	794	-	-	18,300	-
Benjamin L. Jones, . . } S. W. Gould, . . . } Nathaniel B. Nickerson, } Reed & Loveland, . . }	Chatham, . . .	-	3,653	141,100	422,750	231,043	4
F. P. Tilton & Co., . . } Daniel W. West, . . . } Daniel Vincent, . . . } W. F. Flanders, . . . }	Chilmark, . . .	-	14	3,743	1,600	4,983	1
Zenas H. Baker, . . . } Eilert Wefer, . . . } Oren H. Shiverick, . . } Thatcher Kelley, . . }	Dennis, . . .	-	135	61,031	4,102	123,173	2,378
Antone Anderson, . . } George Prialux, . . . } Wm. T. Dunn, . . . } Nicholas Prialux, . . } Tallman & Gifford, . . } H. P. Dunn, . . . } J. F. Crapo, . . . } W. S. Matthews, . . . } E. H. Smith, . . . } Waite & Smith, . . . } J. A. Manchester, . . }	Dartmouth, . . .	-	274	159,791	2,264	290,288	719
Alonzo K. Higgins, . . } F. W. Smith, . . . } W. H. Nickerson, . . . } N. M. Knowles, . . . }	Eastham, . . .	-	-	20,862	100,700	27,500	43
C. C. Church & Co., . . } A. B. Veeder & Co., . . } P. M. Stewart, . . . } C. B. Coombs, . . . } C. B. Coombs, . . . } Isaiah Spindell, . . . } H. J. Allen, . . . } John Manley, . . . }	Gosnold, . . .	-	23	201,462	-	74,714	30
L. L. Vanderhoop, . . } E. D. Vanderhoop & Co., }	Gay Head, . . .	-	-	-	-	-	-
Geo. W. Douglass, . . } Albert E. Douglass, . . } Henry W. Nelson, . . . } Braziers & Hodgkins, } Alfonzo Tarr, . . . }	Gloucester, . . .	4	75	7,265	106,625	103,136	-
N. B. Smith, . . . } E. E. Robbins, . . . }	Harwich, . . .	-	-	5,913	9,075	-	-

POUNDS AND WEIRS.

1897.

Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	4	-	-	-	19	44,945	-	441	751	9,651	187	15,290
130	4	-	-	37	18	16,729	4	-	25,343	1,775	22,183	16,964
75	63	-	-	125	227	40,775	-	1,878	281	-	19,600	2,598
26,529	16	10	157	1,079	-	6,524	-	-	87	2,226	126,455	1,843
329,845	71,408	18	5,979	2,075	9,113	16,022	-	234	186	10,503	35,143	-
42,268	832	100	58	3,966	1,457	5,714	2	458	186	946	118,816	715
385,295	64,509	92	33	210,178	14	66,903	8	279	7,425	27,417	220,355	3,465
-	18	-	-	2,061	-	83,392	-	6,677	1,480	634	35,200	-
1,095,195	4,394	16	32,776	225,350	12,153	20,825	11	17	1,930	12,815	-	383,610
367,932	48,543	-	2,184	6,200	-	19,464	-	-	27	3,560	-	602
38	-	-	-	1,693	-	65,045	-	8	322	681	7,339	148,620
-	-	-	-	-	-	-	-	-	-	24,165	-	42,372

Pounds and Weirs — Concluded.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass
F. A. Tarr, . . .	Magnolia, . .	-	-	-	48,600	26,600	-
E. W. Heath, . . .	Manchester, . .	-	13	73,164	197,800	45,590	-
James B. Powell, . .							
H. D. Powell, . . .	Nahant, . . .	-	1,241	15,965	234,001	-	-
Isaac W. Lewis, . .	Provincetown, .	3	547	2,925	2,142,990	39,620	2,117
H. J. Lewis, . . .							
John A. Lewis, . .							
Robert E. Cornwell, .							
Perez Bangs, . . .							
T. K. Paine, . . .							
Avard L. Smith, . .	Revere, . . .	-	-	-	785,240	62,540	-
Isaiah Spindell, . .	Sandwich, . .	-	104	5,000	5,000	2,000	-
T. L. Mayo, . . .							
Geo. A. Phinney, . .	Sagamore, . .	-	99	-	-	11,700	-
C. B. Jones, . . .	Swampscott, .	-	-	-	172,900	-	-
Jason Luce & Co., .	Tisbury, . . .	-	154	6,336	5,555	22,529	250
H. N. Luce, . . .							
Geo. W. Manter, . .							
W. L. Pease & Co., .							
H. B. Davis & Co., .							
O. S. Daggett, . . .							
W. F. Baker, . . .	Truro, . . .	-	284	4,820	4,872,035	537,200	709
D. B. Rich, . . .							
David Blatchford, .							
Atkins Hughes, . .							
Sylvester B. Atwood, .							
Henry W. Daggett, .	Vineyard Haven, .	-	-	5,900	-	4,315	13
John R. Walker, . .							
John O. Norton, . .							
N. B. Rich, . . .	Wellfleet, . .	1	38	595	278,000	22,785	2
Totals (79 men),	9	7,491	833,128	9,409,543	1,661,813	6,810

Pounds and Weirs — Concluded.

Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	1,090	-	9,435	-	-	-	-	8,100	-
-	-	-	-	1,994	1	14,577	-	1	14	577	5,667	33,943
75	-	-	-	5,245	5	44,461	-	-	667	2,080	13,900	-
2	76	-	2	2,306	60	62,113	-	1,485	15	27,664	419,603	865,076
-	-	-	-	1,075	-	112,530	-	-	-	-	800	25
-	-	-	-	-	-	13,586	-	18	13	-	50,000	40
139	382	-	1	-	32	6,595	-	3	9,638	-	29,200	-
-	-	-	-	91	-	29,071	-	-	-	-	-	6,190
218,999	43,302	180	1,168	3,722	10,387	96,084	1	452	905	9,311	20,930	11,833
2	526	1	-	5,920	35	464,386	-	1,101	1,316	36,388	147,745	553,049
57,174	1,839	-	138	4,361	3,736	5,479	-	65	81	2,721	9,600	-
5	-	-	-	367	22	8,233	-	119	38	1,531	9,160	12,121
2,523,723	274,616	418	42,496	482,935	37,284	1,252,887	26	12,736	50,705	174,672	1,199,983	2,047,742

Comparison of Returns for the Years 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896 and 1897.

YEAR.	FISHERIES.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Soup.	Bquecague.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.	No.														
1882,	Pounds and wets,	85	27,769	1,420,919	1,201,449	8,102	4,219	1,991,480	67,266	3,289,512	310	133,805	40,512	114,843	4,016	-
1883,	"	87	5,994	1,250,263	339,116	4,048,022	2,876	1,848,583	92,671	4,756,490	246	60,182	35,481	184,387	5,361	-
1884,	"	93	5,292	715,886	2,806,203	308,381	6,950	1,641,129	74,826	1,440,486	99	109,084	23,929	238,930	33,980	-
1885,	"	80	18,088	1,066,148	6,564,619	6,255	1,365	1,240,630	17,746	2,643,190	24	32,575	47,231	317,082	7,741	128,698
1886,	"	58	16,874	1,012,802	1,364,634	48,910	2,412	1,966,243	3,226	1,290,466	20	17,315	47,490	261,595	11,570	572,334
1887,	"	62	14,044	1,433,820	1,713,846	127,951	1,233	2,153,504	15,742	1,069,409	109	44,204	89,075	304,492	7,615	812,810
1888,	"	83	30,057	1,054,607	6,665,698	1,202,777	2,455	1,448,451	127,602	2,877,768	115	38,376	63,211	358,917	10,805	2,716,892
1889,	"	103	25,991	1,417,950	17,000,398	1,203,669	4,924	1,331,673	36,043	825,152	524	17,287	69,719	289,993	20,163	1,889,924
1890,	"	88	22,961	1,198,561	4,432,690	2,911,970	5,302	354,423	43,988	1,297,264	1,242	60,633	25,637	210,476	9,180	968,872
1891,	"	87	26,387	2,039,107	10,643,504	1,976,856	1,413	8,100,446	98,749	3,043,814	323	28,355	33,476	389,416	17,511	569,794
1892,	"	83	14,658	1,031,160	15,739,505	1,24,917	1,410	2,421,985	70,085	4,706,333	47	16,296	45,881	346,772	8,069	1,588,890
1893,	"	99	13,440	816,841	16,895,378	1,615,025	561	2,216,406	304,896	2,283,685	2,011	15,842	34,894	284,122	2,643,123	1,419,042
1894,	"	105	6,754	1,378,703	15,361,317	1,152,174	1,849	394,224	304,875	4,127,338	269	14,799	28,715	195,043	2,086,309	1,242,595
1895,	"	102	14,823	1,000,958	22,182,517	1,052,983	2,465	1,464,697	155,331	786,987	58	26,024	435,267	356,933	3,006,544	4,209,153
1896,	"	101	10,616	1,269,475	11,063,681	563,241	1,098	3,663,149	269,345	1,770,146	77	9,995	31,569	194,804	3,800,121	4,032,706
1897,	"	79	7,491	833,128	9,409,543	1,661,813	6,810	2,523,723	274,616	1,252,887	26	12,736	50,705	174,672	1,199,983	2,610,875
1888,	Traps, fykes and irregular returns,	8	-	5,150	* 252,685	7,750	-	-	-	288,466	-	-	-	3,123	3,544	-
1889,	Traps, fykes and irregular returns,	15	2,994	89,516	1,212,942	184,239	64	86	54	64,938	1	2,690	339	2,246	2,060	76,073
1882,	Gill nets and sea seines,	133	1,738	424,630	310,611	633	1,427	99,046	4,205	537,087	87	191,668	6,245	33,487	3,033	-
1883,	"	112	26	41,996	79,689	937,627	838	6,254	1,102	392,535	4	131,815	966	12,681	1,755	-
1884,	"	85	6,544	67,312	541,689	1,526	632	7,855	3,254	216,329	6	136,068	1,578	19,031	2,426	-
1885,	"	78	444	117,674	82,151	9,546	601	26,854	1,656	183,156	1	101,371	233	30,948	967	5,454
1886,	"	49	22	397,727	151,782	811	1,524	18,019	676	75,463	9	32,343	1,039	14,592	21,670	17,226
1887,	"	35	801	847,109	779,211	57	601	676	2,586	177,401	3	32,018	1,457	14,206	30,476	4,708
1888,	"	142	92,010	468,934	734,371	94,310	1,349	7,704	2,027	635,627	2,172	199,946	1,514	30,738	18,701	52,049
1889,	"	208	4,333	401,445	357,054	202,094	1,421	4,062	4,545	271,017	187	55,718	2,576	33,745	199,360	80,008
1890,	"	183	1,448	174,213	686,948	239,474	1,980	2,289	1,141	209,863	1,488	181,401	754	29,950	81,979	94,448
1891,	"	8	8,308	161,363	315,611	43,624	229	489	535	163,750	89	55,254	80	26,824	20,336	24,324
1892,	"	91	214	444,024	967,567	1,827	422	1,933	260	683,119	1	48,100	59	75,614	14,220	23,711
1893,	"	121	910	291,481	1,120,514	52,495	1	141	1,391	301,368	71	56,381	75	66,377	382	106,561

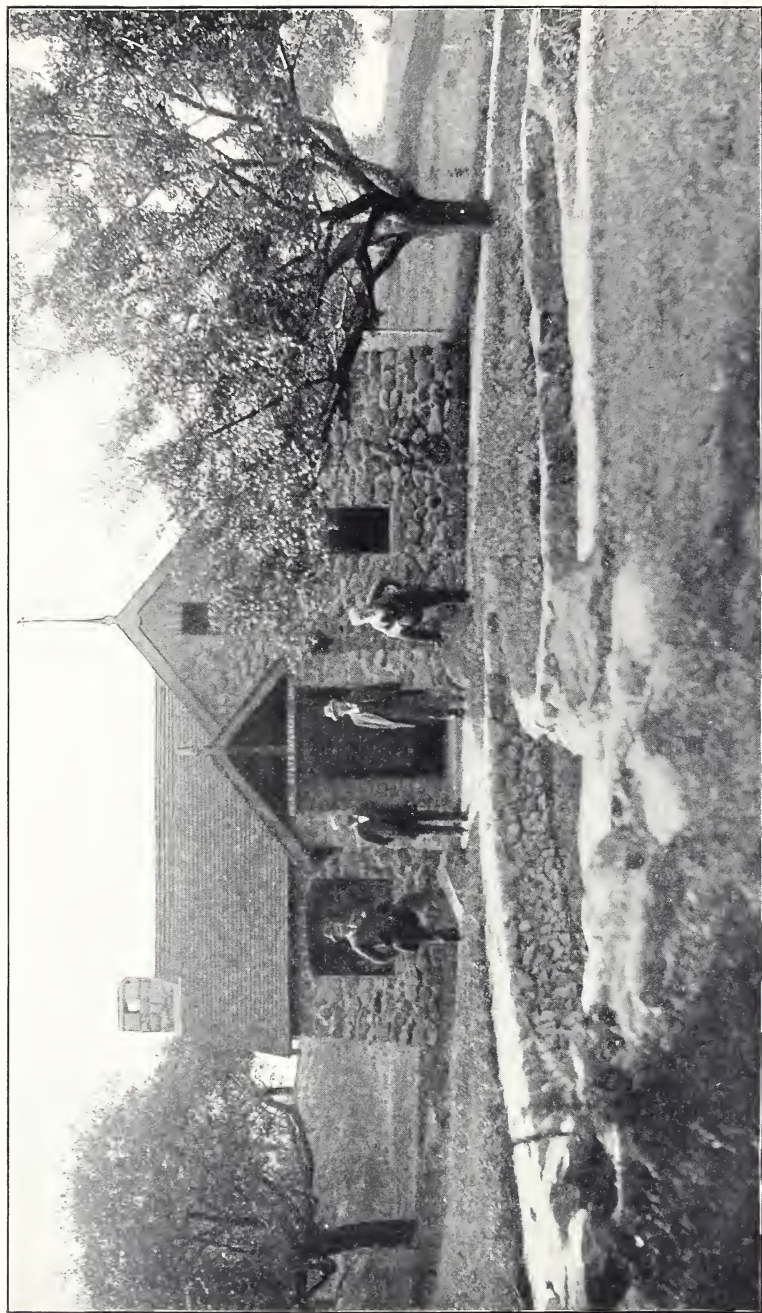
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Comparison of Returns for the Years 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896 and 1897 — Concluded.

Year.	FISHERIES.		No.	Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.																
1882.	Other fresh-water seines.		25	897	1,558,659			234	2,090,526	71,471	3,876,599	397	325,473	46,757	148,330	7,049	
1883.	"		23	391	1,762,950			1,072	1,854,837	93,773	5,149,025	250	191,997	36,807	197,068	7,116	
1884.	"		13	22	610,847			897	1,648,984	78,080	1,657,315	105	245,762	30,507	307,971	36,406	
1885.	"		13	3	1,296,449				1,267,484	19,402	2,826,346	25	133,946	47,464	348,030	8,708	134,152
1886.	"		7	300	797,365				1,979,262	3,268	1,395,850	29	55,031	48,678	276,187	58,872	590,669
1887.	"		5	—	454,409				2,144,973	18,357	1,057,565	112	66,422	88,065	320,220	50,071	818,639
1888.	"		19	6	1,026,042			4	1,672,610	129,850	3,801,393	2,439	240,874	70,523	432,710	40,634	2,875,420
1889.	"		8	—	513,001				1,335,821	40,642	1,161,107	694	75,695	72,634	327,984	221,993	2,015,993
1890.	"		6	—	738,310				356,712	45,130	1,507,617	2,730	242,034	26,391	240,920	102,789	1,112,320
1891.	"		9	—	1,251,994				3,160,935	99,284	3,209,564	412	83,609	33,556	416,240	83,977	594,118
1892.	"		5	—	794,936				2,423,923	306,237	2,583,086	2,082	72,223	84,969	250,749	2,643,505	1,598,571
1893.	"		9	—	545,613				2,216,547	302,325	4,893,911	1,451	100,141	28,918	256,881	2,094,185	8,914,569
1894.	"		6	—	1,003,947				394,257	147,454	1,140,756	61	49,573	436,090	463,503	3,075,426	13,756,795
1895.	"		5	—	4,629,110				1,465,987	270,432	2,371,444	98	78,984	42,451	401,882	4,486,824	4,498,824
1896.	"		6	—	2,507,285				3,664,067	275,126	1,906,195	26	91,285	50,705	613,293	1,235,825	3,691,991
1897.	"		25	20,636	2,507,285				2,528,086	275,126	1,906,195	26	91,285	50,705	613,293	1,235,825	3,691,991
1882.	Total returns.		261	44,734	4,446,280	1,512,060	8,735	5,929	2,090,526	71,471	3,876,599	397	325,473	46,757	148,330	7,049	
1883.	"		239	15,160	4,178,682	4,418,605	4,985,649	5,080	1,854,837	93,773	5,149,025	250	191,997	36,807	197,068	7,116	
1884.	"		205	17,699	2,358,781	3,347,892	3,099,807	1,582	1,648,984	78,080	1,657,315	105	245,762	30,507	307,971	36,406	
1885.	"		184	25,347	3,747,750	6,546,770	15,801	1,881	1,267,484	19,402	2,826,346	25	133,946	47,464	348,030	8,708	134,152
1886.	"		124	19,466	3,183,741	1,520,466	49,221	3,936	1,979,262	3,268	1,395,850	29	55,031	48,678	276,187	58,872	590,669
1887.	"		112	19,292	3,108,642	2,345,692	97,510	1,833	2,144,973	18,357	1,057,565	112	66,422	88,065	320,220	50,071	818,639
1888.	"		264	149,200	3,767,929	7,669,493	1,556,036	3,275	1,672,610	129,850	3,801,393	2,439	240,874	70,523	432,710	40,634	2,875,420
1889.	"		352	40,461	8,617,929	14,919,159	4,326,352	6,414	1,335,821	40,642	1,161,107	694	75,695	72,634	327,984	221,993	2,015,993
1890.	"		291	29,303	3,038,920	5,482,120	6,931,804	7,282	356,712	45,130	1,507,617	2,730	242,034	26,391	240,920	102,789	1,112,320
1891.	"		202	37,346	4,954,822	11,108,745	4,500,052	1,642	3,160,935	99,284	3,209,564	412	83,609	33,556	416,240	83,977	594,118
1892.	"		193	16,928	3,179,923	7,241,072	126,744	2,273	2,423,923	306,237	2,583,086	2,082	72,223	84,969	250,749	2,643,505	1,598,571
1893.	"		235	18,474	4,155,576	19,760,292	4,277,520	562	2,216,547	306,237	2,583,086	2,082	72,223	84,969	250,749	2,643,505	1,598,571
1894.	"		309	12,684	3,693,500	16,321,847	1,652,078	2,207	394,257	302,325	4,893,911	1,451	100,141	28,918	256,881	2,094,185	8,914,569
1895.	"		306	36,830	2,895,594	24,363,699	1,331,370	2,679	1,465,987	147,454	1,140,756	61	49,573	436,090	463,503	3,075,426	13,756,795
1896.	"		307	25,154	4,629,110	18,470,855	736,244	1,713	3,664,067	270,432	2,371,444	98	78,984	42,451	401,882	4,486,824	4,498,824
1897.	"		255	20,636	2,507,285	18,036,624	1,922,054	8,768	2,528,086	275,126	1,906,195	26	91,285	50,705	613,293	1,235,825	3,691,991

Increase of 1885 over 1884, Decrease of 1885 below 1884,	21	7,648	1,393,969	3,198,878	294,106	5,701	381,500	58,678	1,169,031	80	111,816	16,957	40,059	27,698	-
Increase of 1886 over 1885, Decrease of 1886 below 1885,	60	5,881	564,009	5,026,304	33,420	2,005	711,778	16,134	1,430,496	4	78,915	1,214	71,843	50,164	456,507
Increase of 1887 over 1886, Decrease of 1887 below 1886,	12	174	75,099	825,166	48,289	2,103	165,711	15,089	338,285	83	11,391	40,387	44,033	8,801	227,980
Increase of 1888 over 1887, Decrease of 1888 below 1887,	152	129,908	642,287	5,323,861	1,438,526	1,442	472,363	111,493	2,743,828	2,377	174,452	18,542	112,490	9,437	2,556,781
Increase of 1889 over 1888, Decrease of 1889 below 1888,	88	108,739	150,000	12,249,666	2,790,316	3,139	336,789	89,208	2,640,286	1,795	165,179	2,111	104,726	180,949	850,427
Increase of 1890 over 1889, Decrease of 1890 below 1889,	61	11,168	579,009	14,437,039	2,605,452	868	979,109	4,488	346,510	2,036	166,339	46,243	87,064	118,794	903,673
Increase of 1891 over 1890, Decrease of 1891 below 1890,	89	2,492	1,915,902	5,626,625	2,431,752	5,640	2,804,223	53,754	1,701,947	2,318	158,425	7,165	175,320	18,812	518,202
Increase of 1892 over 1891, Decrease of 1892 below 1891,	9	20,418	1,774,899	6,132,327	4,375,252	631	737,012	28,939	2,184,788	364	19,212	12,384	7,301	45,783	1,026,879
Increase of 1893 over 1892, Decrease of 1893 below 1892,	42	1,546	975,653	2,519,220	4,150,776	1,711	207,376	235,942	2,809,266	2,034	7,827	10,971	72,792	297,805	22,426
Increase of 1894 over 1893, Decrease of 1894 below 1893,	74	5,790	1,537,724	3,438,445	2,625,442	1,645	1,822,310	3,962	2,308,825	631	27,918	6,051	93,868	549,320	7,115,998
Increase of 1895 over 1894, Decrease of 1895 below 1894,	44	24,146	2,887,706	8,041,852	320,708	472	1,071,750	154,871	3,753,155	1,390	50,568	407,172	206,622	981,241	4,842,226
Increase of 1896 over 1895, Decrease of 1896 below 1895,	42	11,676	1,823,516	5,892,844	595,126	966	2,198,080	122,978	1,230,688	37	29,411	393,539	61,621	761,119	9,257,971
Increase of 1897 over 1896, Decrease of 1897 below 1896,	52	4,518	2,121,825	434,231	958,810	7,055	1,135,981	4,694	765,249	72	12,301	8,254	211,411	2,600,720	906,833





STATE HATCHERY, WINCHESTER.



SUPERINTENDENT'S DWELLING, SUTTON, MASS.



STATE HATCHERY, SUTTON, MASS.

REPORT OF THE COMMISSIONERS

ON

INLAND FISHERIES AND GAME

FOR THE

YEAR ENDING DECEMBER 31, 1898.

BOSTON :
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Commonwealth of Massachusetts.

To His Excellency the Governor and Honorable Council.

The Commissioners on Inland Fisheries and Game respectfully submit their thirty-third annual report.

HATCHERIES.

Under the legislative resolve, chapter 60, 1898, for the "establishment of a hatchery in the county of Berkshire," the commissioners inspected various locations in said county, and after careful consideration unanimously decided that the location at Adams, with its admirable surroundings, its abundant supply of pure spring water, sufficient to meet all requirements that may possibly arise for the extension of the plant, and its nearness to the highway and railroad station, made it far the best for the interests of the Commonwealth as well as for the citizens of Berkshire County.

The State has now four large, well-equipped hatcheries, of sufficient capacity to provide for all demands for stocking with young fish. Those at Hadley and Adams are substantial brick buildings. That at Winchester, built of stone, is probably, in an artistic view, the most attractive hatchery ever built. Being situated at the entrance to the Middlesex Fells, the commissioners felt justified in departing from the usual form of such structures. It was arranged between the Park Commission and this Board that it should be open a part of the time to the public. During the delivery of fry, last spring, it was visited by a large number of people, sometimes as many as fifty or more a day. The visitors' book, although recording but few of the names, shows a member of the Imperial Fisheries Bureau,

Tokio, Japan; professors of colleges; students of biology and ichthyology; and citizens.

Some improvements and repairs have been made at the Sutton hatchery.

REPORT OF SUPERINTENDENT OF HATCHERIES.

Nov. 19, 1898.

The increasing demand for trout fry made it necessary to enlarge the works and build a new hatchery. Three small ponds have been built at Sutton, mainly for raising yearlings, the largest 8 by 40 feet, supplied by driven wells and springs. An arm of the breeding pond, where the water was shallow and sluggish, has been filled and graded and considerable mud taken from the pond, thereby giving the breeding fish deeper and cooler water. For the last two years an unknown throat and gill disease has carried off some of the largest breeding fish, but this season it seems to have about disappeared. The fish have commenced running to the spawning race, and up to this time 400,000 eggs have been taken.

At Hadley good ponds and runs have been built. In the last two years 2,900 young trout were put in the large pond, and I see no reason why we should not get all the eggs that will be wanted for that station this season. The road from the highway has been graded and gravelled, making an easy drive to the works.

The new hatchery, located at Adams, is now ready to receive its allotment of eggs for the coming season. Being on the highway from Adams to Cheshire, and within three-quarters of a mile of the railroad station, this is a very desirable location for the hatchery. The site secured contains two and one-half acres, is supplied with water from two never-failing mountain springs, one of which has been welled and flows about two thousand gallons per hour, with a temperature of 42° in summer, and is capable of any further development that may be required.

One million eggs were put on the trays at the Sutton, Winchester and Hadley hatcheries, were hatched with a loss of about ten per cent., and in April and May were put in waters throughout the State. A list of the distribution will be found in the Appendix.

Respectfully submitted,

JOHN W. DELANO,

Superintendent of Hatcheries.

DISTRIBUTION OF FISH.

About 900,000 brook trout fry, 90,000 lake trout and landlocked salmon, 3,200 white perch and 260 carp were distributed during the past season.

Reports from all parts of the State where trout have been planted show a continued increase.

One of the most serious drawbacks to the stocking of streams is that the law offers no protection to the small trout. As it now stands, the sale of trout less than six inches in length is prohibited, but even fingerlings can be caught with impunity. If it is good policy to prevent the sale, it is still more important that they should not be destroyed by the fishermen. We recommend a law to prevent the taking or sale of trout less than six inches in length.

WHITE PERCH (*Roccus Americanus*).

Very little reliable information in regard to these fish has been published, and not until a recent date have their good qualities been generally appreciated.

They are found in brackish waters, all along the Atlantic coast from South Carolina to Nova Scotia. Not that this is necessary to their existence, for they are found in ponds remote from the sea, but simply a question of the food which they find there. In ponds connected with the sea their growth is remarkable, and in some such ponds in this State thousands are taken in seines drawn under the ice, and sold in Boston and New York markets.

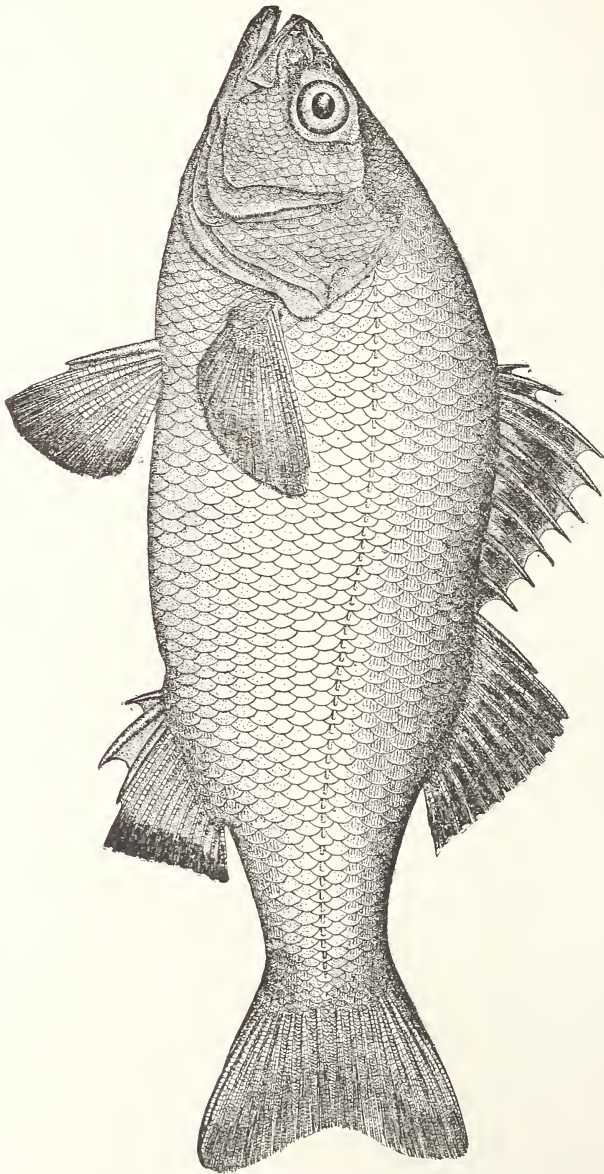
They hibernate in deep fresh water in winter, running into shallow water in the spring, spawn in the latter part of May or first of June, and return to deep water, or, if opportunity offers, to brackish water.

A white perch from two to three years old will weigh from one-half to three-fourths of a pound. We have seen adult specimens weighing two and three-fourths pounds.

They go in schools, and for that reason, if the angler does not understand how to detain the school, his catch is not likely to be large. No better pan fish is found in our fresh waters.

The successful introduction into the island ponds, not pre-

viously stocked with them, depends upon the supply of food. The ponds should be deep, yet with shallow, grassy places and



WHITE PERCH.

muddy bottoms, as such ponds produce more natural food than those of a sandy or gravelly nature.

The white perch thus far procured for stocking the great ponds of the State have been obtained from a pond in Yarmouth. Many years ago these waters were placed under the care of the towns of Yarmouth and Dennis, with ample regulations for controlling them, and for several years were profitably managed; but, for reasons not known to us, the law has not been regarded of late, and the pond has been promiscuously seined until the perch have become comparatively scarce.

This pond is the only one this side of Martha's Vineyard where seining can be successfully done to supply the demand for stocking our great ponds; but, owing to the present scarcity of fish, it is very expensive, as the seine must be drawn sometimes six or eight times a day to get enough to stock one pond. This could be obviated and an abundance of fish secured for the State by an act of the Legislature, placing the pond under the control of the commissioners. If this is not done, the act requiring them to stock the great ponds will be very difficult to carry out.

FISHWAY AT MIDDLEBOROUGH.

Owing to the difficulties arising from the uncertainty of ownership of the dam, the needed repairs on this fishway were so retarded that it became necessary to put the case in the hands of the Attorney-General, whose prompt action resulted in causing the fishway proper to be put in good order; but there are still some obstacles in the way, preventing the free passage of migratory fish.

The fishway passes under the highway and was located on a grade where it was understood the right of flowage ceased. A few years ago the town of Middleborough bought 75 horsepower of this privilege for their electric plant. As there are no mills now dependent upon this dam, it is supposed that the selectmen felt aggrieved to see the water run to waste, and so not only took the whole of it, but raised it some two feet above the entrance to the fishway. Either the water must be lowered to its former level or the fishway must be extended into the pond.

The town of Middleborough derives an annual income of four or five hundred dollars from fisheries, which can be maintained only by giving the fish free passage to the pond.

LAWRENCE FISHWAY.

Two years ago, the old fishway having been carried away by freshets, the Legislature appropriated \$2,500 in part payment for rebuilding the Lawrence fishway, the Essex Company paying the other half.

Upon consultation with Mr. Mills, chief engineer of the company, it was decided to build it on the opposite side of the river from the old one, as being less likely to be affected by freshets and not so expensive to keep in repair.

The work has been well and thoroughly done, and the fishway is in good working order at less cost than was first estimated. Of the \$2,500 appropriated, about \$1,000 revert to the State.

The relations between this Board and the Essex Company have been exceedingly pleasant throughout the whole transaction.

SHORE FISHERIES.

The past season has not been profitable to the weir and net fishermen. There has been a gain in the number of mackerel taken, but a large portion have been small and of little value. During the summer and fall there were large quantities of tinker mackerel on the coast, and the indications are favorable for a good catch of medium-sized fish another year.

Great numbers of these small fish have been taken in the weirs and traps, too small for market; and, while a portion were sold to the canners, the balance were destroyed. It is lamentable to have these young fish, unsuitable for food, taken from the sea before they are of sufficient size to be of any value. We call the attention of the Legislature to these facts, and trust that suitable laws may be provided to check the slaughter.

There has been a decided falling off in the catch of sea herring, as compared with previous years, which seriously affects all branches of the fisheries. With herring plenty, the shore fishermen obtain quick returns and the deep-sea fishermen are enabled to procure bait without being obliged to go to the coast of Maine or the British Provinces.

The fishing business is at a low ebb at the present time, but with the prospect of a large catch of mackerel on the coast

next season, of sufficient size to be of value, and the opening of the markets of Cuba and Porto Rico for salt cod fish, it looks favorable for an increase in our fishing fleet and more satisfactory returns for those engaged in this important industry.

LOBSTERS.

We present below the report of the United States Commission on hatching lobsters at Wood's Hole and Gloucester. In former reports we have freely expressed our views on the artificial hatching of lobsters as a means of keeping up the supply.

U. S. COMMISSION OF FISH AND FISHERIES,
WOOD'S HOLE, MASS., Oct. 19, 1898.

HON. E. A. BRACKETT, *Chairman Board of Commissioners on Fish and Game, Winchester, Mass.*

DEAR SIR:—In accordance with the terms of my appointment as deputy fish and game warden, I beg to submit the following report of the work done in the propagation of lobsters at this station.

In accordance with our custom of the past few years, a few eggs were taken during the late fall and winter and carried over until the next spring. The first of these were received Dec. 7, 1897, and from then until Jan. 19, 1898, we received 522,000. These eggs worked about the same as those of last year; they developed nicely until about the first of April, with practically no loss, but after that time the loss was heavy. Only about one-third of these eggs produced fry.

The active season began about the first of April and ended June 30. Collections were made from points in Buzzard's Bay and Vineyard Sound, and from the fishermen operating between Green River and Ship Pond, including Duxbury and Plymouth bays. Besides the above, one small lot of eggs was received from Scituate. None of the territory yielded its customary supply of eggs, the greatest difference being in Buzzard's Bay. This is due largely, I think, to the abolishment of pound nets in the bay. As is well known, these nets furnish a large part of the bait used by lobster fishermen, and when this supply was cut off nearly one-half of the men abandoned the fishery. This of course reduced our source of supply nearly one-half, and our receipts in eggs were correspondingly small. In all 16,048,000 eggs were taken in Massachusetts waters, and the fry liberated in the waters of the State.

Respectfully submitted,

E. F. LOCKE,
Superintendent.

U. S. COMMISSION OF FISH AND FISHERIES,
GLOUCESTER, MASS., Sept. 22, 1898.

Hon. E. A. BRACKETT, *Chairman Board of Commissioners on Fish and Game, Winchester, Mass.*

DEAR SIR: — I herewith submit a summary of the lobster work at Gloucester, Mass., station, during the past season.

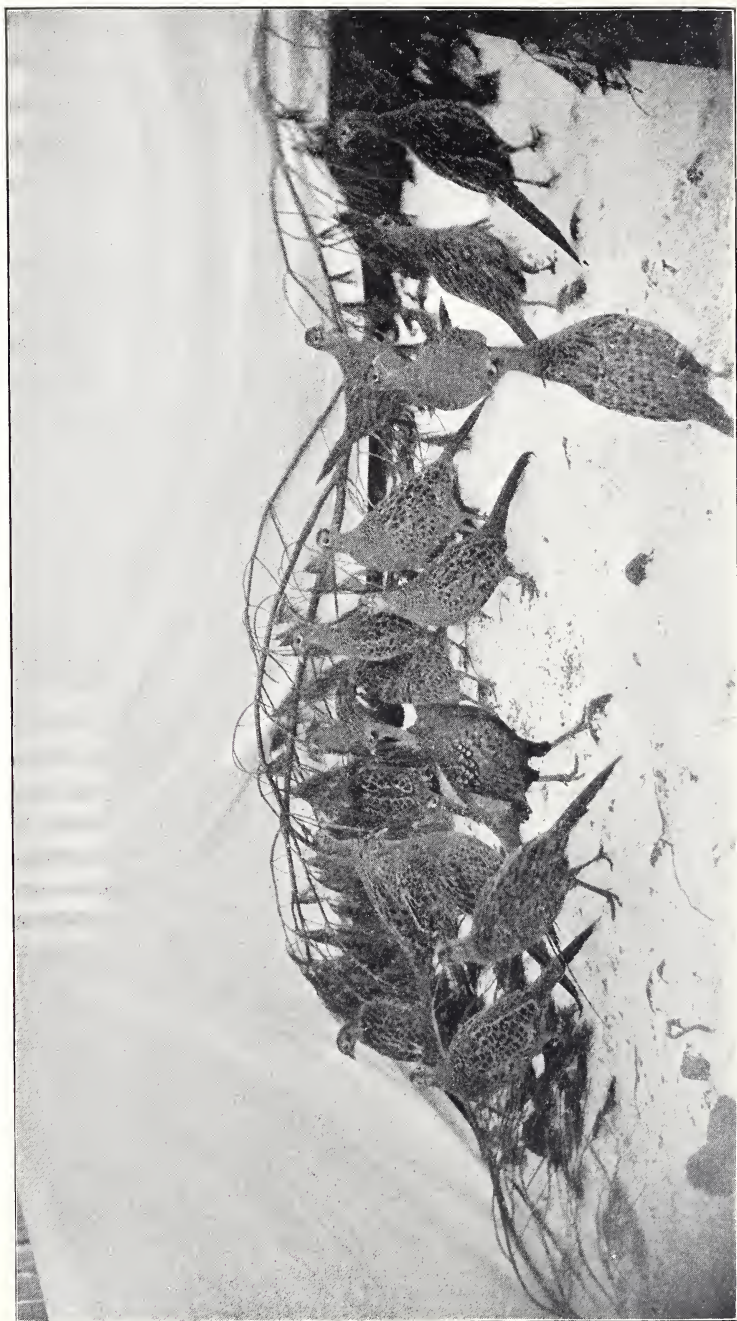
The collection of egg lobsters was begun early in April, the first eggs being received April 11, and continued until July 10, when the last were received. The collections in Massachusetts were confined to Gloucester and vicinity and in and around Boston. In this State 3,860 egg lobsters were obtained, which yielded 43,710,000 eggs. Collections were also made along the coasts of New Hampshire and Maine. The total receipts from all sources amounted to 72,101,000 eggs, from which were hatched 65,097,000 lobster fry, of which 42,690,000 were planted in Massachusetts waters at various points from Ipswich Bay to Boston harbor. The remainder of the fry was distributed along the New Hampshire and Maine coasts, from Portsmouth, N. H., to Rockland, Me.

Very respectfully,

C. G. CORLISS,
Superintendent.

During the last eight years the lobster fisheries have decreased over fifty per cent., and unless some more effective measures are taken to preserve them, this important industry will be lost to the State. The artificial propagation by the United States Commission will not save them, and can be of little use except to restock waters already depleted.

The enforcement of the present law is expensive and inadequate, and should be supplemented by further action of the Legislature. Fines to the amount of over ten thousand dollars have been paid in to the courts by a class of fishermen who are almost irrepressible, many of whom have been convicted and fined several times, and yet continue their destructive work, regardless of the law. The more scarce the lobsters, the greater the temptation to violate the law; and, unless some remedy can be devised to protect the better class of fishermen, either an annual closed season or a suspension of all lobster fishing for a time will be demanded by the dealers and all who desire to have this valuable crustacean preserved.



MONGOLIAN PHEASANTS.

CLAMS.

We would call attention to the clam laws of the Commonwealth, which should be revised, as there are hundreds of acres of flats suitable for the cultivation of clams which are at present unproductive. With a general law protecting the owner or lessee, this once important industry would in a few years be revived, to the great advantage of our citizens, and furnish our markets from waters within the Commonwealth, whereas they are at present supplied largely from other States.

DEER.

The last Legislature passed a law prohibiting the hunting, chasing or killing of deer throughout the State, and in the northern and western towns they are reported as rapidly increasing.

Several years ago the same law was enacted protecting deer on Cape Cod, this being at that time the only section where deer were found. It was favored by the hunters of that locality, and served their purpose well, as it kept outsiders out. Unfortunately, there was an unwritten law which allowed these local hunters to take or kill a deer whenever and wherever they pleased, and it was almost impossible to convict them. Both laws appear to have been well observed, and in consequence the deer have not increased there.

PHEASANTS.

There have been several attempts to introduce the English pheasants into the New England States. They appear to stand our winters fairly well, but fail to increase, and finally disappear. The cause of this failure is not positively known. It is a mongrel bird, made up from a cross with other pheasants, and from long culture has become semi-domesticated, and consequently has, to a considerable extent, lost the instinct of self-preservation, and doubtless falls an easy prey to its enemies. They are easily bred, and could be raised in large numbers and turned out in the fall similar to the course pursued on the preserves in England and other European countries; but from

their logy and half-tame character, they would fail to satisfy our sportsmen, trained to the skill required in the capture of our quail and ruffed grouse.

Following this failure came the reports of the phenomenal success of the Mongolian pheasant, introduced into Oregon by Judge Denny. A careful inquiry into the habits and character of this bird warranted the conclusion that its introduction into this State, with proper protection, might fill the vacancy caused by the rapid decrease of our native game birds.

The impossibility of obtaining enough birds to stock the State, and the fact that our first efforts to raise them almost failed, forced the State aviaries into being an experiment station, the result of which has fully justified the expenditure of time and money, as it has demonstrated that it is possible to breed them in considerable numbers at small expense. As a direct result of our efforts, the number which have been liberated would have cost, could they have been bought, some thousands of dollars.

Circulars of inquiry were sent out this fall to all parties who have had pheasants from the State, either to liberate or to breed from, to distribute in their respective localities. Replies have been received from most of them, and, while some have been fairly successful, from the testimony before us it is evident that the breeding of pheasants is a specialty outside the grasp of the ordinary breeder of poultry.

The one who has achieved the most complete success is Mr. H. B. Foster of Ashby, acting for the Fitchburg Rifle and Gun Club, an association entitled to great credit for its energetic and efficient work in increasing and protecting our game. With a comparatively small stock of pheasants, he raised and liberated, during the past season, some 250 young birds.

They were reared in brooders and small coops until two or three months old, and then liberated in various localities. We can but think that putting out these birds so young was a mistake, for, having been kept in close confinement and artificially fed, their instinct of self-preservation was dormant, and in this condition they were suddenly thrown on their own resources with no fear of their enemies. Had they been given the liberty of the grounds of the aviary, they would have continued to

come back for food and shelter at night, while learning self-reliance, and could later have been trapped, if desired for distribution.

The reports show that where older birds have been liberated they have not only survived the winter, but in many places broods of young pheasants have been seen this summer. Mr. Converse, Secretary of the Fitchburg Rifle and Gun Club, reports young pheasants numerous, as the result of last year's planting. In and around Winchester they are more plenty than ruffed grouse. Scarcely a week passes that we do not receive reports of both old and young birds being seen.

In all the range of ornithology nothing is more interesting than the study of these young birds. Starting with the smallest possible hold on life, they develop in a few weeks into the hardiest of all birds, capable of going a long time without food, and apparently able to withstand the rigors of our New England climate.

The number of birds for distribution this fall is lessened by an epidemic, which attacked them the latter part of September and October and carried off a number. It was something that has not occurred before, and a careful study and dissection failed to reveal the cause.

In last year's report some statements were made in regard to what we considered a new and important departure in breeding pheasants. Another year of experiment goes to show that these statements were not exaggerated, and that no one extensively engaged in raising them can afford to pursue any other course. As we have fully demonstrated the importance of the incubator and brooder, a few words in relation to these machines may be of interest to those engaged in raising pheasants.

Incubators. — Of the half-dozen incubators now in use, all are more or less successful, and have made possible a large and growing industry. The complaints and denunciations, arising mainly from competition, are of no importance, for, after all, it is the man behind the machine that is as much responsible for the results as the machine itself. Fortunately for those who build them, claiming that they can and should be run with the regularity of clock work, variations of temperature within certain limits are not harmful but even desirable. In hatching

pheasant eggs any arrangement which brings the chicks out before the full period of incubation is not desirable, as premature development produces weakness. Owing to the closeness of the shell, they require more air than hens' eggs, and for that reason the hot-air incubators have some advantages over hot-water tanks. In other respects the latter are more desirable. The machine of the future will combine the advantages of both.

It may be well to state here that no incubator and no amount of care and attention can make up for the loss of vitality in the eggs consequent upon improper feeding or too long or too close confinement of the breeding birds. Failing in this, we fail in everything.

Brooders. — When the eggs are hatched and the chicks are dried off we put them into the lower part of the incubator, taking care that they have plenty of warm air, until they are twenty-four hours old, when they can be moved to the brooder, but not fed until forty-eight hours old. Now we begin to realize that it is comparatively easy to hatch pheasant eggs, but not so easy to raise the young birds. For the first three weeks we are dealing with one of the most delicate organizations in bird life. What the mother hen instinctively supplies, we are endeavoring to produce by artificial means, and the closer we keep to nature the better will be the results.

The ordinary brooder, used by breeders of fowls, is of no value for pheasants, as the chicks crowd together, smothering each other, or becoming so weak that they soon die. It did not require much foresight to determine the fact that, unless some means was devised for a successful brooder, the experiment would be a failure. Before this was accomplished many birds were lost; but fortunately the desired object is at last obtained, and the brooder we are now using gives entire satisfaction. It is designed to be used in the brooder house, but with slight alterations could be used out of doors as well.

The size is four feet long, three feet wide and nine inches deep, and will easily carry from fifty to seventy-five birds until they are six weeks old, and no longer need artificial heat. The boiler is made of copper, sixteen ounces to the foot, and runs the whole length of the brooder, eighteen inches wide and two inches deep. The tube which carries off the heat of

the lamp runs through the centre of the boiler, one-half inch from the bottom, is three inches wide and one-half inch deep, with a chimney at each end. The boiler is divided lengthwise into three equal apartments, the hot water flowing through the centre and returning at the sides. The chimney directly over the lamp is provided with a damper, so arranged as to automatically open and close with any change of heat in the boiler. In running it no attention is paid to the heat outside of the boiler.

An adjustable false bottom should cover the entire floor of the brooder, and for convenience is made in two parts. The frames are made of one-inch strips, either halved or mortised together, one frame covering the space under the boiler, covered top and bottom with burlap or sailcloth drawn tightly and filled in between with an inch of hair felting. The second frame fills the remaining space, and is covered only on top, with the burlap or sailcloth. The upper surface of this cloth should have the lint or fibre singed off, to prevent the young birds picking it before they have learned to select their food.

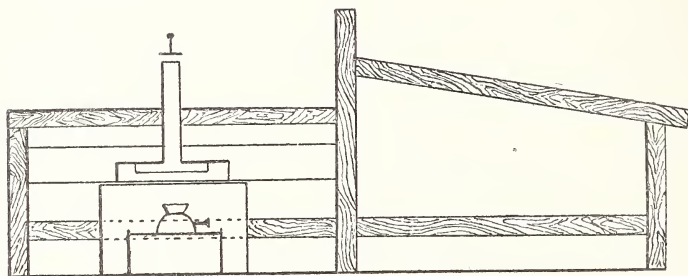
This false bottom is arranged about two inches below the bottom of the boiler, or so near that when the young birds stand up their backs will come in contact with it, and is sustained by thin strips of wood about two inches wide laid one above the other, that the frame may be lowered as the chicks grow larger.

The front part of the brooder is open, covered only with net to prevent the birds flying out, thus insuring the greatest possible amount of fresh air.

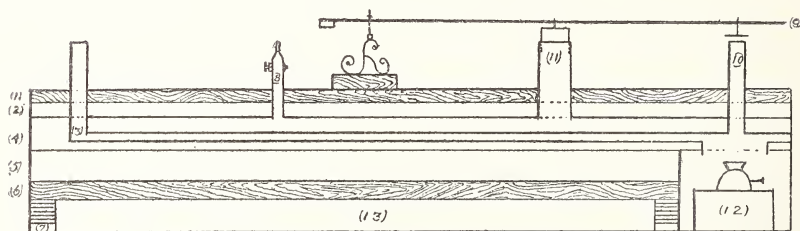
Before putting the chicks in the brooder, the temperature of the water is raised to 125°, where it is kept for the first two weeks, and for the next two gradually lowered to 100°. It may be thought that this heat is too great. Theoretically it is, practically it is not. In our experiments it gave the best results.

The advantage of this brooder is the ease with which it is controlled; that it is the boiler, not the brooder, that is heated, and that the heat is applied to the backs of the chicks, along the line of their vital organs, which for several weeks are not sufficiently mature to enable them, unaided, to digest their food or maintain a separate existence.

We use the B brooder lamp burner, with a tin lamp six inches in diameter and two inches deep, around the top of which is soldered a strip of tin one inch wide. It will save much anxiety, and perhaps the whole plant, if this top is kept half full of water.



BROODER.—TRANSVERSE SECTION.



BROODER.—LONGITUDINAL SECTION.

DESCRIPTION OF SECTIONAL DRAWING OF BROODER.

- | | |
|---|--|
| 1. Top of brooder. | 7. Strips for adjusting bottom. |
| 2. Space between boiler and top, packed with felting or mineral wool. | 8. Stop-cock. |
| 3. Smoke pipe running through boiler. | 9. Lever and damper. |
| 4. Boiler. | 10. Front chimney. |
| 5. Air space between boiler and adjustable bottom. | 11. Hydraulic regulator. |
| 6. Adjustable bottom. | 12. Lamp. |
| | 13. Space between adjustable bottom and bottom of brooder. |

DEPUTIES.

Deputies have been appointed in almost all parts of the State, and their annual reports give general information on all matters connected with fish and game in their respective localities. Many of these deputies have done good work in enforcing the fish and game laws, giving time and expenses without remuneration from the State. If the laws are worth anything (and if they are not, they should be repealed), these men should be compensated for their labor.

The total number of arrests reported by these unpaid deputies is 60; amount of fines awarded by the courts, \$1,341; total number of arrests by paid and unpaid deputies, 102; total amount of fines, \$2,417.

The running of the hatcheries and the construction of new ones, the stocking of great ponds with food fish, the building and repairing of fishways and the increasing demand for the enforcement of the fish and game laws, have in the last three years doubled the work of the commission.

It is to be regretted that so many of these laws are defective. Especially is this true in regard to the game laws. Efforts have been made, in the last two sessions of the Legislature, to improve them, but have failed, mainly from a lack of united effort on part of the sportsmen and those who are anxious to preserve what little game we have left. It is not only expensive but very difficult to enforce our present laws, so much so that it is sometimes a question whether the State is justified in making the effort.

They do not increase nor wholly protect our game. No laws can be effective that do not prevent the pot-hunter and snarer from putting in their deadly work. Whole sections of the State are swept by them, until scarcely a bird is left. The commercial value of this destructive business is so small that it should not for a moment weigh against any decisive action that may be considered necessary for the preservation of our birds.

With our well-equipped hatcheries, the inland fisheries cannot only be maintained but largely increased. We know of no corresponding arrangement by which the depletion of game can be restored, unless, possibly, by establishing aviaries or preserves in various parts of the State. But, however successful this might be, so long as the destruction alluded to above has full sway even such arrangement would do little toward restoring our game.

While we fully recognize the necessity of providing healthy recreation for those who are burdened with the anxiety and strain of business, we would remind the sportsman that there are other considerations quite as important. Whether considered in its bearing on agricultural interests, so necessary to

our existence, or in that higher sense which teaches us to look kindly on all that is beautiful in life, the destruction of our birds cannot be regarded in any other light than that of a serious calamity.

Anxious to do everything possible to enforce the laws, we asked for an additional appropriation to pay deputies. Failing in this, we asked that our unpaid deputies should receive one-half the fines from prosecutions of all fish and game laws; but the act passed at the last session of the Legislature, chapter 205, seems to be so worded as to cause some misunderstanding as to the intent of the law, and in some instances the deputies have not received anything for their expenses and labor. We recommend that it be amended.

In 1897 a very important law was passed, on the recommendation of this Board, for the better protection of our song and insectivorous birds. Under the ruling of the Attorney-General it was found defective, and the last Legislature amended it, to take effect April 1, 1899. By the stand this Board has taken and the influence of the Audubon and other societies, this law is not likely to become a dead letter.

E. A. BRACKETT,

I. C. YOUNG,

E. D. BUFFINGTON,

Board of Commissioners on Inland Fisheries and Game.

APPENDIX.

[A.]

LIST OF FISH COMMISSIONERS.

U. S. COMMISSION OF FISH AND FISHERIES, WASHINGTON, D. C.

George M. Bowers, Commissioner.

Irving H. Dunlap, Chief Clerk.

W. de C. Ravenel, Assistant in charge of Division of Fish Culture.

Dr. Hugh M. Smith, Assistant in charge of Division of Inquiry respecting Food Fishes.

Charles H. Townsend, Assistant in charge of Division of Statistics and Methods of the Fisheries.

ARKANSAS.

H. H. Rottaken, Little Rock.

W. B. Worthen, Little Rock.

CALIFORNIA.

Alex. T. Vogelsang, President, . . San Francisco.

J. M. Morrison, Sacramento.

C. B. Gould, Oakland.

Address, California Fish Commission, 78 Flood Building, San Francisco, Cal.

COLORADO.

Forest, Game and Fish.

J. S. Swan, Denver.

CONNECTICUT.

Fish and Game.

George H. Knight, President, . . Salisbury (Lakeville P. O.).

Abbott C. Collins, Secretary, . . Hartford.

James A. Bill, Treasurer, . . Lyme (Bill Hill P. O.).

DELAWARE.

Stanley Short, Milford.

Dr. E. B. Shortlidge, Supt. of Hatcheries, Wilmington.

FLORIDA.

John Y. Detwiler, New Smyrna.

John J. Ruge, Apalachicola.

GEORGIA.

Capt. J. D. Edmondson, Supt. of Fisheries, . . . La Grange.

ILLINOIS.

Fish and Game.

S. P. Bartlett, Quincy.
 N. A. Cohen, Urbana.
 A. Lenke, Chicago.
 H. W. Loreday, Game Warden, . . . Chicago.

INDIANA.

Z. T. Sweeney, Columbus.

IOWA.

Geo. E. Delevan, Estherville.

KANSAS.

J. W. Shultz, Wichita.

MAINE.

Fish and Game.

L. T. Carleton, Augusta.
 Henry O. Stanley, Dixfield.
 Chas. E. Oak, Caribou.
 A. R. Nickerson, Boothbay Harbor.

MARYLAND.

John E. Sterling, Crisfield.
 A. Fred'k George, Swanton.
 Robert H. Gilbert, Game Warden, . . . Baltimore.

MASSACHUSETTS.

Fish and Game.

E. A. Brackett, Winchester,
 I. C. Young, Wellfleet.
 E. D. Buffington, Worcester.

MICHIGAN.

H. W. Davis, President, Grand Rapids.
 Geo. D. Mussey, Secretary, Detroit.
 Herschel Whittaker, Detroit.
 F. B. Dickerson, Detroit.
 Albert Ives, Jr, Detroit.
 Seymour Bower, Superintendent, Detroit.

Office, 78 Moffett Building, Detroit.

MINNESOTA.

Fish and Game.

W. S. Timberlake, President,	. . . . .	St. Paul.
C. S. Benson, Secretary,	. . . . .	St. Cloud.
F. von Baumbach,	. . . . .	Alexandria.
Wm. Bird,	. . . . .	Fairmount.
W. H. Morgan, Superintendent,	. . . . .	St. Paul.
S. F. Fullerton, Executive Agent,	. . . . .	St. Paul.

MISSOURI.

Game and Fish.

A. J. D. Burford, Chief Warden,	. . . . .	Burfordsville.
122 Deputy Wardens.		

NEBRASKA.

Wm. L. May, President,	. . . . .	Omaha.
Robert S. Oberfelder, Secretary,	. . . . .	Sidney.
J. S. Kirkpatrick,	. . . . .	Lincoln.
M. E. O'Brien, Supt. of Hatcheries,	. . . . .	South Bend.

NEW HAMPSHIRE.

Fish and Game.

Nath'l Wentworth,	. . . . .	Hudson Centre.
W. T. Shurtleff,	. . . . .	Lancaster.
F. L. Hughes,	. . . . .	Ashland.

NEW JERSEY.

Fish and Game.

Geo. Pfeiffer, Jr.,	. . . . .	Camden.
H. P. Frothingham,	. . . . .	Mt Arlington.
P. W. Page,	. . . . .	Summit.
Wm. A. Halsey,	. . . . .	Newark.

NEW YORK.

Fish, Game and Forest.

Barnet H. Davis, President,	. . . . .	Palmyra.
Hendrick S. Holden,	. . . . .	Syracuse.
Wm. R. Reed,	. . . . .	Potsdam.
Charles H. Babcock,	. . . . .	Rochester.
Edward Thompson,	. . . . .	Northport, L. I.
Charles A. Taylor, Secretary,	. . . . .	Albany.

OHIO.

Fish and Game.

George Falloon, President,	. . . . .	Athens.
L. H. Reutinger, Secretary and Chief Warden,	. . . . .	Athens.
Albert Brewer,	. . . . .	Tiffin.
A. J. Hazlett,	. . . . .	Bucyrus.

OREGON.

The Governor,	. . . . .	Portland.
Secretary of State,	. . . . .	Portland.
R. D. M'Guire, Commissioner and Executive Officer,	. . . . .	Portland.

PENNSYLVANIA.

Fish Commission.

S. B. Stillwell, President,	. . . . .	Scranton.
H. C. Demuth,	. . . . .	Lancaster.
Louis Streuber,	. . . . .	Erie.
James W. Correll,	. . . . .	Easton.
D. P. Corwin, Secretary, 609 Lewis Building,	. . . . .	Pittsburg.
James A. Dale, Corresponding Secretary,	. . . . .	York.

Pennsylvania Game Commission.

Wm. M. Kennedy, President,	. . . . .	Allegheny City.
Coleman K. Sober,	. . . . .	Lewisburg.
E. B. Westfall,	. . . . .	Williamsport.
James H. Worden,	. . . . .	Harrisburg.
Irving A. Stearns,	. . . . .	Wilkesbarre.
Charles Haebner,	. . . . .	Philadelphia.

RHODE ISLAND.

J. M. K. Southwick,	. . . . .	Newport.
Wm. P. Morton, Secretary,	. . . . .	Johnstown.
H. T. Root,	. . . . .	Providence.
C. W. Willard,	. . . . .	Westerly.
A. D. Roberts,	. . . . .	Woonsocket.
H. C. Bumpus, Ph.D., Brown University,	Providence.

UTAH.

John Sharp, Fish and Game Warden,	Salt Lake City.
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VERMONT.

Fish and Game.

John W. Titcomb,	St. Johnsbury.
Horace W. Bailey,	Newbury.

VIRGINIA.

Frank Fletcher, Chairman,	. . . . .	Jenkins Bridge.
S. F. Miller, Secretary,	. . . . .	Cardinal.
Geo. B. Keezell,	. . . . .	Keezelton.
Pembroke Pettit,	. . . . .	Palmyra.
John A. Curtis,	. . . . .	Richmond.

WASHINGTON.

The Governor,	. . . . .	Tacoma.
State Treasurer,	. . . . .	Tacoma.
A. C. Little, Commissioner,	. . . . .	Tacoma.
Office, 212-213 Berlin Building.		

WISCONSIN.

Edwin E. Bryant, President,	. . . . .	Madison.
Calvert Spensley,	. . . . .	Mineral Point.
James J. Hogan,	. . . . .	La Crosse.
Wm. J. Starr,	. . . . .	Eau Claire.
Currie J. Bell,	. . . . .	Bayfield.
Dr. E. A. Birge,	. . . . .	Madison.
Henry D. Smith,	. . . . .	Appleton.
James Nevin,	. . . . .	Madison.
James T. Ellarson, Fish and Game Warden,	Madison.

WYOMING.

Fish and Game.

Gustave Schnitger,	Laramie.
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[B.]

LIST OF PONDS LEASED

*By the Commissioners on Inland Fisheries, under Authority given by
Chap. 384, Sect. 9, of the Acts of 1869.*

1879.

July 1. Fresh Pond, in Falmouth, to Thomas H. Lawrence, 20 years.

1884.

July 17. Farm Pond, in Cottage City, to John C. Hamblin and others, 15 years.

Aug. 30. Sand Pond, in Ayer, to inhabitants of Ayer, 15 years.

Sept. 5. Great Pond, in North Andover, to inhabitants of North Andover, 15 years.

[C.]

LIST OF PONDS STOCKED WITH FOOD FISH.

LAKE TROUT.

We received 100,000 lake trout eggs from the United States fisheries station, at Northville, Mich., which were hatched with small loss, and distributed as follows:—

Quacumquasit Pond, Brookfield.	Monponsett Lake, Halifax.
Great Sandy Pond, Plymouth.	Chaubunagungamaug, Webster.
Mashpee Lake, Mashpee.	Mill Pond, West Barnstable.
Kenoza Lake, Haverhill.	

LAND-LOCKED SALMON.

Ten thousand land-locked salmon eggs, obtained through the United States Commission, from Green Lake Station, Me., were hatched with small loss and planted in Quacumquasit Pond, Brookfield.

WHITE PERCH.

White Pond, Athol.	Higgins Pond, Wellfleet.
North Pond, Orange.	Clapp's Pond, Provincetown.
Long Pond, Dracut.	Nabnasset Pond, Westford.
Humphrey's Pond, Lynnfield.	Bungay Pond, Attleborough.
Johnson's Pond, Haverhill.	Whitney's Pond, N. Attleborough.
Badlock Pond, East Douglas.	Upper Falls Pond, N. Attleborough.
Dorrity Pond, Millbury.	Lower Falls Pond, N. Attleborough.
Long Pond, Lakeville.	

DISTRIBUTION OF BROOK TROUT.

<i>Winchester Hatchery.</i>	Hiram Wright, for brooks in Westwood.
John Fottler, Jr., for brooks in Sharon.	James H. Jones, for brooks in Falmouth.
John Weber, for brooks in Wrentham.	J. O. Parker, for brooks in Methuen.

DISTRIBUTION OF BROOK TROUT — *Continued.*

A. S. Backus, for brooks in West Barnstable.
 G. E. Townsend, for brooks in Methuen.
 A. B. Clark, for brooks in Ipswich.
 Charles A. Wiggin, for brooks in Peabody,
 Samuel A. Clark, for brooks in Peabody.
 J. A. Roome, for brooks in Peabody.
 C. H. Cotton, for brooks in Peabody.
 I. A. Ferren, for brooks in Middleton.
 Hon. J. L. Woodfall, for brooks in Rockport.
 H. P. Durkee, for brooks in Lynnfield.
 John E. Spencer, for brooks in Salem and Boxford.
 C. E. Goodhue, for brooks in Ipswich.
 J. I. Horton, for brooks in Ipswich.
 A. C. Savory, for brooks in Ipswich.
 J. A. and H. Blake, for brooks in Ipswich.
 F. E. Hodgdon, for brooks in Rowley.
 C. F. Winch, for brooks in Georgetown.
 G. H. Webster, for brooks in Haverhill.
 C. H. Poor, for brooks in Haverhill.
 G. L. Huntoon, for brooks in Dracut.
 F. A. Ladd, for brooks in Tewksbury.
 Ralph Pindar, for brooks in Carlisle.
 Wm. A. Lang, for brooks in Westford.
 G. A. Coburn, for brooks in Chelmsford.
 C. L. Smith, for brooks in Chelmsford Centre
 O. P. Greenwood, for brooks in Billerica.
 Melvin Soper, for brooks in Tewksbury.

Daniel Gowing, for brooks in Wilmington.
 Hon. L. G. M. Knight, for brooks in Ashburnham, Gardner, Templeton and Winchendon.
 W. H. Frost, for brooks in Athol Centre.
 J. F. Whitcomb, for brooks in Athol Centre.
 F. S. Messenger, for brooks in Athol.
 Charles Horr, for brooks in Athol.
 L. E. Turner, for brooks in Templeton.
 F. C. Hastings, for brooks in Phillips-ton.
 J. S. Harwood, for brooks in Phillips-ton and Athol.
 Francis Stone, for brooks in Petersham.
 Hon. J. B. Farley, for brooks in Wendell.

Sutton Hatchery.

Chas. Foster, for waters in Worcester.
 G. E. Whitehead, for waters in Millbury.
 Nelson Vondell, Jr., for waters in Grafton.
 John F. Mitchell, for waters in Shrewsbury.
 Ed. Cooley, for waters in Worcester.
 Wm. F. Tucker, for waters in Worcester.
 W. C. Hamilton, for waters in Princeton.
 D. A. Hamilton, for waters in Paxton.
 J. C. Mellor, for waters in Holden.
 E. A. Brigham, for waters in North Grafton.
 C. H. Higgin, for waters in Auburn.
 J. Q. Hatch, for waters in Northborough.

DISTRIBUTION OF BROOK TROUT—*Concluded.*

Rufus B. Dodge, Jr., for waters in Charlton.	Wm. Feiker, for waters in Northampton.
J. W. Fairbanks, for waters in Westborough.	C. H. Gere, for waters in Northampton.
C. F. Rice, for waters in Grafton.	G. S. Buckner, for waters in Easthampton.
J. W. Robinson, for waters in Southborough.	B. P. Owen, for waters in Easthampton.
Clinton Cook, for waters in Barre.	A. S. King, for waters in Easthampton.
E. J. Bates, for waters in Dudley.	J. L. Lyman, for waters in Southampton.
F. W. Forbes, for waters in Westborough.	C. M. Pettingill, for waters in Plainfield.
R. F. Parker, for waters in Westborough.	C. M. Bradley, for waters in Plainfield.
C. A. Hinds, for waters in Orange.	A. Q. Stevens, for waters in Hawley.
C. W. Smith, for waters in Colrain.	R. D. Bisbee, for waters in Chesterfield.
H. A. Smith, for waters in Colrain.	Albert M. Belden, for waters in Chesterfield.
L. D. Bailey, for waters in Shelburne.	Alanson Nash, for waters in Williamsburg.
A. C. Bray, for waters in Heath.	T. M. Wells, for waters in Williamsburg.
A. J. Amstein, for waters in Buckland.	F. D. Belden, for waters in Whately.
E. C. Frost, for waters in Charlemont.	S. Barrus, for waters in Goshen.
E. J. Noble, for waters in Savoy.	E. W. Lawton, for waters in Ware.
C. W. Burton, for waters in Adams.	F. M. Smith, for waters in South Hadley.
W. S. Jenks, for waters in Windsor.	H. H. Batchelor, for waters in Granby.
A. M. Nichols <i>et al.</i> , for waters in North Adams.	W. H. Foote, for waters in Westfield.
E. B. Hodskins, for waters in Chester.	G. H. Perkins, for waters in Westfield.
H. E. Day, for waters in Chester.	H. A. Collings, for waters in Holyoke.
J. S. Moore <i>et al.</i> , for waters in West Stockbridge.	J. B. Ripley, for waters in Chester.
J. H. Crane <i>et al.</i> , for waters in Pittsfield.	Charles Wright, for waters in Russell.
James Anderson <i>et al.</i> , for waters in Middlefield.	G. M. Fisher, for waters in Belcherstown.
E. J. Lazell, for waters in Springfield.	R. W. Vickery, for waters in Greenfield.
<i>Hadley Hatchery.</i>	
E. N. Foote, for waters in Northampton.	
W. H. Richardson, for waters in Northampton.	
H. E. Maynard, for waters in Northampton.	

[D.]

REPORTS OF DEPUTIES.

The following are reports from our deputies, covering about every section of the State. Where two or more were from the same locality, expressing similar views and facts, we found it desirable to print but one.

MARION, NOV. 26, 1898.

Commissioners on Inland Fisheries and Game.

GENTLEMEN:—As deputy commissioner I submit the following report.

Early in the spring I forwarded blanks to all fishermen whose names could be ascertained, and up to the present time have received returns from 340 lobster and 195 pound and net fishermen; this does not include quite a large number who have reported as out of the business this year, and others whose blanks have been returned on account of change of residence.

Chapter 28 of the Acts of 1881 requires all fishermen to make application to the commissioners for blanks to report their catch for the year, and that the returns must be made on or before the twentieth day of October. Yet a large number of men going out of the business and new ones coming in every year, with the prevailing idea that they are not required to make returns unless blanks are forwarded to them, and that they can send in their returns as late in the season as they wish, makes it impossible to get a full and correct list, and at the same time delays the report. If such a bill as was recommended by the commissioners in their report last year could be passed, licensing all lobster fishermen, better protection would be given to the lobster and also to the honest fishermen; every man lawfully fishing could be located, and a more accurate account of the catch could be obtained.

In carrying out chapter 208, Resolves of 1897, relating to stocking great ponds of the Commonwealth with food fish, I will say that Mill Pond, situated at the head of Bass River in the town of Yar-

mouth, was selected as the most available place to secure our supply of fish. While there is no doubt that it is one of the best nurseries in the State for white perch, the conditions are such that it has been quite expensive to secure what fish were wanted. The pond being surrounded by cranberry-bogs, it has been necessary to do our seining after the berries are picked and before the bogs are flowed for the winter. This fall the water around the shore was low and very warm, and the fish kept well out in the deep and cooler water, so considerable time and hard work was necessary to get what fish were needed to fill all the applications. Other methods of capture will be looked into, and, if found advisable, will be adopted another season.

In the report will be found a list of the fourteen ponds stocked with 3,250 white perch, all in good condition.

Respectfully,

JOHN W. DELANO,
Deputy.

BRADFORD, NOV. 14, 1898.

Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have attended to the enforcement of the fish and game laws the present season in the sections of the State from which complaints have been sent, with effective results, as in nearly all instances the parties have been apprehended and fined. Ill health for a period of two months rendered it impossible for me to attend to the duties alone, and thus I was forced to put several complaints in the hands of those whose lack of experience occasioned in several instances what may properly be called a default. With the assistance of Mr. John H. Hersey of Haverhill, 42 offenders of the fish and game laws have been arrested, several of whom received the full limit of the law in fines, while others, having a wife and children dependent on them for support, were let off with a small fine, or had their cases placed on file, on condition that a proper observance of the laws would be expected of them in future. The amount of fines imposed in the lower courts was \$1,576. Two cases are now pending in the superior court. The additional expense in employing assistance has been paid from such fees, as the several courts have ordered, thus no charge has been made to the commission for assistance, which otherwise would have been a matter of some inconvenience to an inadequate appropriation.

At Salisbury Beach several lobster catchers from Seabrook, in New Hampshire, have made a business of carrying small lobsters across the State line, where a change in the lobster laws of New Hampshire allows lobsters to be sold of a less length than that

required in Massachusetts. Three of the parties were caught in the act and fined \$15 each.

In my attempt to enforce the law in relation to the setting of lobster traps by persons not inhabitants of the State at the time, I found myself in a district court, confronted by the oldest if not the most adroit and successful practitioner of the bar of Rockingham County, in the State of New Hampshire. Counsel presented twenty-five alleged errors in the constitutionality of the act of the Legislature in enacting such a law, by calling the attention of the court to the decision of the supreme court in relation to the fisheries in Buzzard's Bay. All of the exceptions were overruled, and the several cases tried on the evidence presented, resulting in the discharge of the defendants, the court ruling that an imaginary boundary line, extending into the ocean three miles, without visible bounds, could not be correctly located.

There has been only one complaint for the illegal taking of a pheasant. Appearances seem to indicate that the pheasant, like the bicycle, has come to stay. Its wonderful powers of reproduction, together with its climatic adaptability, in connection with proper legislative protection, will eventually make it the leading game bird for this section of the country.

Respectfully,

B. P. CHADWICK,
Deputy.

MARION, NOV. 1, 1898.

Hon. E. A. BRACKETT, *Chairman of Commissioners on Inland Fisheries and Game.*

SIR: — I herewith submit my report for the month of June, July, August and September, 1898.

Stationed for that period in south-eastern Massachusetts, for the protection of the lobster and menhaden fisheries in Buzzard's Bay, Vineyard Sound and other neighboring waters, I found the laws in regard to fish and game generally respected and complied with. Still, there were offenders, especially among the lobstermen, who would persistently ignore any and all laws pertaining to the catching and selling of short lobsters. Vigilance and care were needed to break up this business. Numerous sunken pots containing short lobsters were destroyed and their contents liberated into the waters of the bay and sound. The largest seizure occurred at Gay Head, at Lobsterville, July 28, where ten large cars, containing about 1,200 live and 400 dead short lobsters, were discovered attached to the cars of certain parties, — that is, to the cars containing marketable lobsters.

The parties were arrested, and in the lower court probable cause was found, and they were bound over to the grand jury, which assembled at Edgartown the last Tuesday in September. Said parties were indicted, and on the same day and the day following their cases were laid before the jury. The evidence was not impeached, defendants did not take the stand, yet the jury found for defendants. I believe that no jury has ever convicted a man in Dukes County for such offences.

It would be easier to protect the short lobsters if many of the wealthy class whose residences are on the shores of the bay and Vineyard Sound would not encourage the breaking of the law by purchasing for food and bait short lobsters whenever they could be obtained safely, and certain fishing clubs are reported to be among the worst offenders.

At the head of Buzzard's Bay few pots are now set, these mostly private. The lobsters are growing scarcer year by year, by reason of the young being destroyed before having a chance to spawn. Lobsterville at Gay Head and Cuttyhunk furnish the largest supply, although the New Bedford fishermen, covering much territory in the bay, do well.

There was no attempt by porgie fishermen to invade the bay and pursue their business in defiance of the law this past summer, and, as a consequence, that fish was very plentiful, making good food for the bluefish that came in abundance and remained late in these waters, furnishing rare sport for the professional and amateur fishermen.

Fishing of all kinds never was better in Buzzard's Bay than during the present season.

JAMES H. DELANO,
Deputy.

WORCESTER, NOV. 5, 1898.

MR. E. A. BRACKETT, *Chairman Commissioners on Inland Fisheries and Game.*

DEAR SIR: — I herewith submit my report as deputy.

Number of persons arrested and convicted of violation of fish and game laws, 14; amount of fines, \$131.

Respectfully,

JOHN F. CUMMINGS,
Deputy.

BEVERLY, MASS., NOV. 23, 1898.

E. A. BRACKETT, Esq., *Winchester, Mass.*

DEAR SIR: — I beg to submit my report for 1898, and would say, in regard to the game, that quail is more plenty than last year; lots

of bunches now that have not had a gun fired into them. They have had good feed and have not been travelling as much as usual. The boys in this section are wanting good dogs, that, reports to the contrary, is the cause of the so-called scarcity of quail. Partridges are not plenty. Pheasant are doing well and increasing. The fish, viz., bass, perch and pickerel, are plenty in our lakes and ponds and the trout are on the increase.

I have been out about forty Sundays, and have in a great measure prevented Sunday shooting, which early in the season was indulged in by many, causing thereby owners of the best covers to post their ground, and that is where many of the quail now are. But such owners, being sportsmen themselves, will, after we succeed in stopping such shooting entirely, take in their signs and let the boys enjoy themselves, as it is their desire.

There is much to be accomplished yet for the protection of our game, and the deputies, in working for such protection, are all doing well, for the compensation they receive, which is nothing in a financial way. I am assured no fault can be found in the work done.

Yours very truly,

F. G. LEFAVOUR,
Deputy.

BOSTON, Nov. 1, 1898.

EDWARD A. BRACKETT, Esq., *Chairman.*

DEAR SIR: — In my capacity of deputy commissioner I have during the past season, and until very lately, been at a loss to know how the season was turning out as to our supply of game. Thus far the sportsmen and market shooters have not found birds plentiful, at least in many sections of this State. Ruffed grouse have not been so scarce for several years, and at this time are worth \$1.25 per pair in our markets at wholesale. I refer to native birds. Quail are unusually small, most of the dealers say they are not well grown; and the most of those sent to the market from this State are much below the size that quail usually are by November 1. Woodcock hold their own; they are now being found in considerable numbers in all favorable spots.

I have devoted considerable time to watching the markets, and I am pleased to report that I found no cause for complaint during the entire season. Many dealers have called upon me at various times, inquiring as to the game and fishery laws; and I find a disposition on all sides to conform strictly to these regulations.

Although ruffed grouse are scarce at this time, I do not apprehend any danger of extermination. I am more than ever convinced that

these birds are "wanderers upon the face of the earth," having no home, and that they make pilgrimages of no small distance, both upon foot and upon the wing. They exist in great numbers in the wilderness to the northward, and enough of them will always find their way to our covers so long as these covers exist. The snare of the pot hunter may keep them scarce, but I fear no extermination.

JOHN FOTTLER, Jr.,
Deputy.

EDWARD A. BRACKETT, *Winchester, Mass.*

HUDSON, MASS., Nov. 9, 1898.

DEAR SIR: — The following is my report, respectfully submitted: —

I received my appointment as deputy June 24, 1898, but did not get the papers so I could qualify until July 8. Since then I have been on the lookout for violators of the fish and game laws. I have posted printed copies of the fish and game laws in the post-office and in other places where I thought they would attract the attention of sportsmen. I have caused to be printed in our local papers copies of the laws, and it is generally understood that there is a fish and game deputy in this section of the State.

Sunday shooting has stopped in this town, and where there used to be numbers out every Sunday fishing and shooting, now there are none that I can find. Outside of this town it is still carried on to some extent, but not so much as formerly.

Ferrets were very common here last year, but as yet I have not seen or heard of them being used.

I have made no arrests. I found a man shooting a pistol in the woods on the Lord's Day, but did not think I had better arrest him.

I should like to be reappointed.

Respectfully,

DANIEL D. ROSE,
Deputy.

NANTUCKET, MASS., Oct. 28, 1898.

I can say that there has been no trouble this year from violators of the game laws in my district, owing, I think, to the fact that there was some one there to enforce the law. The lobsters have decreased considerably, but bluefish have been more plenty, and the tern have increased to a very large extent. Shore birds and plover have been very scarce.

Yours truly,

JOHN R. SANDBURY,
Deputy.

COCHESSETT, Oct. 28, 1898.

MR. BRACKETT.

DEAR SIR: — During the past season I have attended to my duty the best I could in the capacity of game warden. Have observed but very little violation of the law, therefore have made no arrests, all being first offences since my appointment.

Partridge and quail are scarce here, owing to numerous foxes. Plenty of woodcock, rabbits and gray squirrel.

I have broken up Sunday hunting and fishing. There is a good deal of ferreting and snaring about here, which I hope to break up without causing arrests.

The fishing is very poor in this vicinity, not many trout and no black bass here.

Respectfully,

D. R. SIMMONS,
Deputy.

WEYMOUTH HEIGHTS, Nov. 9, 1898.

Hon. E. A. BRACKETT.

DEAR SIR: — Herewith please find my report as deputy warden for the past year.

Quail and partridge have not been very plenty, but there has been no shooting in the close season. Have endeavored to enforce the Sunday law in regard to shooting in the woods.

With the help of another officer, have made two arrests for netting smelts in brook at East Weymouth. The offenders received a fine of \$50 each. It is almost impossible for me to prevent the illegal seining and netting of smelts, as I have nearly two miles of the river and brook to look after in the spawning season; but would say that I have attended to my duties to the best of my ability.

Yours respectfully,

B. F. RICHARDS,
Deputy.

QUINCY, Nov. 9, 1898.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I submit the following report as deputy for 1898: —

Early in the season I spent several nights with Mr. Pope, watching for parties seining smelts, but without results. Later we went to Weymouth Landing and East Weymouth four times, but could not find any one. As the town of Weymouth pays two men to watch the brooks, that section is well protected.

Since Mr. Thayer received his appointment we have worked together. We have arrested the following persons, who have been convicted and paid fines: Peter Dixon, Andrew Swanson, Hans Poluquest, all of Rockport, who paid a fine of \$20 each for having mutilated lobsters in their possession; H. O. Cook of Hull, six short lobsters, \$30; A. Pope of Hull, two short lobsters, \$10; George Pansey of Quincy, twenty-five short lobsters, \$125. William H. McLoud and John McDuff, both of Boston, for pursuing and shooting at wild fowl from naphtha launch in Quincy Bay, will come into court and plead guilty, and pay a fine of \$20 each.

In regard to short lobsters, we have followed them so sharp this season that it is hard for anyone to find a short one in this vicinity. As for quail and partridge, they are on the increase. Smelts seem to be plenty, but are not biting. As for Italians shooting robins, we have followed them so close we have broken them up and nearly stopped it in this vicinity. We had one complaint for snaring at Green Harbor. We went there at an expense of about \$3 each, and found no cause for the complaint; it was all imaginary.

We will continue to look after the violators of the fish and game laws as usual.

Respectfully yours,

CHARLES N. HUNT,

Deputy.

HINGHAM, MASS., Oct. 28, 1898.

MR. E. A. BRACKETT.

DEAR SIR: — Since my appointment as deputy I have watched the rivers very closely, Weir River in Hingham and Back River in Weymouth and Hingham. At Back River we found a very small amount of fish running during close season. At Weir River fish were very plenty from March 15 to about April 15. They then gradually thinned out.

On March 12, at about 12 o'clock at night, we discovered a party of two taking smelts from Weir River, both parties living on the river, one being a female in male attire. They were dipping the fish out with pails. They were taken into custody. We made them put fish back into river. They promised not to touch any more of the fish in close season, and, having watched them closely, I think they have kept their promise.

In Weir River during spawning season, at the head of the river known as Weston's Pond, there was a large number of spawn killed by water getting low and spawn exposed to sun. There is also a large pressure of water coming over the falls, which washes the fish

upon the banks; and at night we have thrown back from one to five bushels of smelt into the river.

There is an old fishway where eels can go up into the pond, but the fish are able to go only about half way. By a small expenditure of money and labor this could be made so that smelt could go up also, and this would save them from spawning outside the falls. Have talked with a number of old fishermen, they also think as I do. Also in Weir River there are a great many small inlets where a large number of the fish go, and in one of these inlets the Hingham Water Company had a pipe laid so that the fish could get over it only at high tide. I notified the superintendent of the Water Works, requesting him to remove stone which was over the pipe, which he did. This allowed the fish to go up into the woods, thus protecting the spawn from sun.

Have been reports of parties from Quincy seining on part of river known as Bass Point, but we discovered nothing. There has been a large sloop in Hingham harbor and off Crow Point. We watched them very closely, but found it very hard to discover any signs of seining, and if they do, it is done at night, and it is very hard to approach without being seen.

There seems at present to be a large amount of fish in harbor, running fairly good size, but they do not seem to bite. The old fisherman average from about ten to twenty pounds a day to a man.

Two years ago I arrested nine seiners at Weir River, and convicted them all.

In regard to partridge and quail, they are very few. Gray squirrels are very scarce.

We have been troubled somewhat by Italians shooting during close season, but not so much lately.

I had an article inserted in the town warrant last town meeting to appropriate \$200 for enforcing law on fish and game, and the town voted to expend the amount for that purpose.

I have made no arrests this year.

Respectfully yours,

W. I. JAMES,

Deputy.

NORTH ATTLEBOROUGH, MASS., Nov. 10, 1898.

Hon. E. A. BRACKETT, *Chairman.*

DEAR SIR: — I respectfully submit my report as deputy commissioner of fish and game for the year 1898.

I find the laws protecting fish and game fairly well observed, although there have been some complaints of Sunday shooting. I

have not seen or heard of any snaring in this immediate section. Fishermen and hunters alike continue to be interested in having everything possible done to secure a more abundant stock of fish and game.

It cannot be said that game is increasing in this vicinity, but the varieties found in our woods have been fairly plentiful. Good catches of fish have been frequently reported.

The work of stocking the great ponds with white perch has been continued, and there is no doubt that the result will be a plentiful supply of this valuable food fish.

In conclusion, I would urge, as the best thing to secure thorough protection to fish and game and effective enforcement of the game laws, the employment of a suitable number of paid deputies. Until such action is taken, the Commonwealth cannot expect to derive all the benefits which ought to follow her expenditure of money in this department.

Very respectfully,

C. C. PECK,

Deputy.

PEABODY, MASS., Oct. 28, 1898.

Mr. E. A. BRACKETT, *Chairman.*

DEAR SIR:—In response to your request for a report, I beg to submit the following:—

I have made no arrests, consequently there are no fines. Am working quietly in that direction.

Regarding game and fish, I have noticed an increase in trout and hear reports of pheasants being seen quite frequently.

I wish to report as regards Mr. Nelson, that he has prevented a great deal of unlawful shooting by the fact being known that he is a deputy, and has been very useful in his way.

Yours truly,

A. B. CLARK,

Deputy.

AMESBURY, MASS., Nov. 4, 1898.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In my work the past season as deputy I have confined myself to my immediate vicinity. I am pleased to say that I have not had a single complaint of illegal fishing or shooting. I have performed my duties faithfully, which accounts for state of affairs.

Quail seem to be on the increase with us, but the ruffed grouse and partridge are surely decreasing. Unless we have a law for the better protection of these noble game birds, they will soon be a thing of the

past. Shore and marsh birds have been unusually plenty. We have had excellent success with the Mongolian pheasants you so kindly sent me. I think these birds will in time more than make up for the loss of our partridge.

Respectfully submitted,

F. R. WHITCHER,

Deputy.

MANCHESTER, MASS., NOV. 4, 1898.

MR. E. A. BRACKETT.

DEAR SIR: — In regard to my work as deputy since May 18, would say that I have given the fish and game laws my careful attention, and I think the sportsmen here have kept well within their limits this season.

The trouting period was of course well commenced before I received my appointment. One day last week a party in fishing for smelts caught a trout that had gotten over from the fresh-water pond into the salt, but it was not hurt and was put back again.

There is a small gain of partridges this season, I think, and will be more as long as there is fear of the game law being enforced in this town. Snaring is the one thing to look after in relation to these birds.

I have seen one female pheasant in our woods, and a male has now joined her. Of these two I am very watchful.

We find a fair lot of gray squirrels at present, but a few years ago they seemed to migrate from our woods; now they are quite plenty again.

Of quail we have none in our pastures and fields.

The game posters which you sent me and which I put up through our woods and along our trouting stream seem to have had a decided effect, and, as I have not found or known of any one breaking these laws, have had no occasion for arrests or fines.

Very truly yours,

THEODORE C. ROWE,

Deputy.

IPSWICH, MASS., NOV. 9, 1898.

EDWARD A. BRACKETT, *Chairman Commissioners on Fisheries and Game.*

SIR: — Herewith please find my report of work as a deputy in the vicinity of Ipswich, Mass.

I think that the game is more plentiful this season than last. I have arrested thirteen this year for violating the fish and game laws, and have convicted the same; fines, \$215.50.

Yours respectfully,

JAMES A. LORD,

Deputy.

HAVERHILL, MASS., Nov. 9, 1898.

Mr. E. A. BRACKETT, *Chairman Fish and Game Commissioners.*

DEAR SIR:—I hereby submit to you the following report:—

The trouting season opened April 1 very favorably, seventeen being taken from Hawks Brook at one time, all of good size,—a marked increase above 1897.

Woodcock seem to be about the same quantity as heretofore. Quail, although we had a severe winter and continued snow, seem to have made a considerable increase over last year. Ruffed grouse in this vicinity are apparently growing less.

I have heard no reports of shooting during the close season. The scarcity seems to be due to men hunting the birds for the market. As they bring from 75 cents to \$1 a piece in Boston, and times are dull, some of our sportsmen leave all else to slaughter grouse for the market. The American Express Company informs me that they carry out from seventy-five to one hundred per week. From the time the season opens till it closes there is a continual drain.

When the leaves are off and the Indian summer creates a desire in the average sportsman to take a day or two of recreation, there is no game. Can there be no way to check this slaughter of game as a business? I would suggest the organization of the sportsmen throughout the State, to assist, through the proper channels, our able and painstaking Board of Fish and Game Commissioners to limit if not prohibit the marketing of ruffed grouse.

On October 15 I received notice that certain parties in Boxford were snaring game for the market. I devoted two days endeavoring to locate the snares, but failed to find any or get anything positive concerning it. I would be pleased to have you appoint some one as deputy who can devote more time to the work than I can, as I am confined by my work in a factory.

Very truly yours,

CLINTON S. BURKE,

Deputy.

CHELMSFORD, MASS., Oct. 31, 1898.

Mr. BRACKETT.

DEAR SIR:—Have made no arrests, therefore no fines have been received. I have spent some time looking after Sunday gunners; have warned quite a number. Had twenty large notices printed, and posted part of them. The partridges and gray squirrels have been so hunted in the past years that they are scarce this year.

Yours respectfully,

GEORGE P. MANSFIELD,

Deputy.

LOWELL, MASS., Nov. 7, 1898.

Hon. E. A. BRACKETT, *Chairman of Commission on Inland Fisheries and Game.*

DEAR SIR:—I respectfully submit the following report of the fish and game in my vicinity.

During the month of July I saw several salmon near the fishway, and also have seen eight black bass near the dam, and a large number of alewives, chubbs, suckers, yellow perch and hornpouts. Have seen more eels here this year than usual. I have posted notices near the fishway, some of which have been destroyed, but have kept renewing them. Have stopped several persons from fishing near the fishway.

I hope to see the time when we will have a new fishway here in Lowell equal to the new one which has recently been built in Lawrence, as our fishway I consider very poor.

I am glad to say that to my knowledge no netting has been done in Tyngs Pond this year, as I have kept a close watch, and the white perch fishing has been very good. Have taken up and destroyed in this pond two set lines, and in Mud Pond, which is connected with Tyngs Pond, three set lines. The bath house I spoke to you about this summer, which is situated in Tyngs Pond, is still there, and I recommend it as a good fish trap. Fish run into this house when the two doors which are on the back are left open (these doors are under water), and when they are closed the fish once inside cannot get out. I saw in June last a large number of white perch shut up in this bath house trying to get out, but could not, both doors being closed.

After Leaches Pond in Chelmsford was stocked with white perch I posted the notices prohibiting fishing between December 1 and June 1 for three years. No fishing being done through the ice, some good strings of pickerel have been caught there this summer. The white perch that were put in this pond have been seen playing around on the surface of the water on several occasions.

I have had no complaints this year as yet, and, having no evidence against any person for violating the law, have made no arrests.

I visited Great Pond in North Andover, and good strings of white perch and other fish are reported from there. The lease on this pond runs out Sept. 5, 1899. Nabnasset Pond, which was stocked with white perch last October, is one of the best ponds in this vicinity. No fishing being allowed through the ice, it will be a good move in the right direction, and will save the pickerel for three years. If you will send the notices to me for this pond, I will see that they are

properly posted. I would recommend that fishing for pickerel through the ice in all State ponds be prohibited for a period of five years.

Game seems to be quite plenty in this vicinity, but partridges, quail and woodcock are not as plenty as in 1897. Gray squirrels and rabbits are showing up well. I think the law that allows an owner to trap and snare game on his own land is a poor law to protect game; and I think every true sportsman will agree with me.

Three deer have been seen in Tyngsborough, near Tyngs Pond, in October last, but have not been killed or any attempts made to capture them in any way, so far as I have known.

I have given notice that all persons using ferrets in hunting rabbits will be prosecuted.

Respectfully yours,

GEORGE T. SPENCE,
Deputy.

GARDNER, MASS., Oct. 31, 1898.

EDWARD A. BRACKETT, *Chairman Board of Commissioners on Inland Fisheries and Game.*

SIR:—As to my work, I have noted the condition of our fish and game; have distributed and posted copies of the game laws, also had them published in the local papers; have looked after violations of the game laws, and have been ably assisted by the sportsmen of this vicinity. I have made no arrests; have had a number of complaints and investigated them, but no direct evidence to convict. I should like to see the Sunday law amended so as to include any person found in the woods with firearms, also to confiscate the firearms.

In regard to fish in this vicinity, in the several ponds there are pickerel, pout, perch and black bass. This has been a good season for trout, very few small ones. One party caught eleven, weighing nine pounds. Should suggest that the law on trout be changed from September 1 to August 1, as the trout are full of spawn in the month of September. Pickerel are scarce, small strings being caught, some weighing less than one-half pound. Crystal Lake in this town, controlled by the Gardner Water Company, is the best fishing for black bass. Crystal Lake being a tributary of the Connecticut River, black bass are not protected. (Acts of 1893, chapter 80.)

As to game in this vicinity, we have partridge, woodcock, quail, rabbits and gray squirrels. Partridges are quite plenty this fall; quail and woodcock very scarce; not very many gray squirrels; rabbits are quite plenty, with the cooney in the majority. A few wood

duck have been shot this season, but no black duck. Three deer have been seen within the limits of the town within a year, a buck, doe and fawn, but have not been molested.

Respectfully yours,

J. H. JENKINS,
Deputy.

BALDWINVILLE, MASS., Nov. 16, 1898.

EDWARD A. BRACKETT, *Chairman Fish and Game Commissioners.*

DEAR SIR:—I beg leave to submit the following report of my work as deputy for the year ending Nov. 16, 1898.

I have posted copies of the 1898 fish and game laws in Templeton, Otter River, Baldwinville, Winchendon, South Royalston and Phillipston.

On April 19 I investigated the reported killing of a deer in the town of Phillipston, and found that the report started from some trout fishermen who came across a small calf skin in the woods. I saw the skin, and was satisfied that it was not that of a deer. The wild deer I reported last year are still as numerous as at last report, and are so tame that they feed in the gardens within a mile of the town. I do not think any of them have been shot at.

Partridges and rabbits are as plenty as at any time for several years. Gray squirrels are very scarce. Quail are doing well, and have increased in numbers since last report. Very few duck and woodcock have been killed this season.

The early trout fishing was above the average, several very good strings being taken. The bass fishing was fairly good.

I investigated a complaint of snaring in the eastern part of Franklin County, and found that the partridges are about exterminated over the territory covered by the snares in the towns of Orange, Wendell and New Salem. On account of the distance from home and the limited time at my disposal, I did not catch the snarers, but I understand that they are being looked after by a local gun club. I would strongly urge that a good live deputy be appointed in either Orange or one of the above-named towns.

Respectfully submitted,

H. A. PERKINS, Jr.,
Deputy.

ATHOL, Oct. 28, 1898.

E. A. BRACKETT, *Chairman Commissioners on Fish and Game.*

I have caused one arrest to be made for netting trout, but, as the parties were ignorant of the law, and my only desire being to stop the same, I did not press the case beyond the payment of the costs of court.

Ruffed grouse are very plenty, and if the pot hunters with dogs could be limited as to numbers taken, this would be the best section in the State for them. There are three or four that hunt all the time and ship to market.

Trout have been very plenty, and I have seen some very fine large strings, and many large fish on the spawning beds this fall.

Quite a number of deer have been seen in this vicinity during the season.

W. H. FROST,
Deputy.

LEOMINSTER, Nov. 8, 1898.

E. A. BRACKETT, *Chairman Fish and Game Commissioners.*

DEAR SIR: — I have no arrests for violation of fish and game laws to report. Was on the lookout for violation of the close seasons for several days before the first of April and the fifteenth of September, and naturally at intervals during the open seasons.

Should say that ruffed grouse were fully as plentiful as in the past few years, if indeed they are not more so. The gun clubs have been doing good work in hatching and setting out pheasants, of which you are doubtless fully informed. More quail than usual were heard whistling this summer, but have seen none this fall. They are never plenty here. There are a few local woodcock. There is much fox hunting, which I think lucky for the birds, although I should not say foxes were especially numerous.

The black bass fishing in this vicinity I have found rather poor, and the trout have been well-nigh exterminated by the "trout hogs," who fish for a season's record and never put back a five-inch trout. There should be a law against having in possession more than a certain very limited number of trout under six inches in length. The present provision against exposing for sale trout less than six inches is entirely inadequate.

I have not found any snares in the westerly and northerly part of Leominster.

GEO. CARTER CHANEY,
Deputy.

LANCASTER, MASS., Nov. 10, 1898.

HON. EDWARD A. BRACKETT, *Chairman Commissioners on Inland Fish and Game.*

DEAR SIR: — I respectfully submit my report as deputy for the year 1898.

Game has been fairly plentiful, but far from being abundant. Occasional Sunday shooting has been reported, otherwise little fault

can be found relative to the violation of the fish and game laws in this vicinity. Unless deputies are paid for time spent, they cannot do justice to the protection of the fish and game. There are a few deer in this section. I have made no arrests.

Very respectfully,

ANDREW J. KENNEDY,

Deputy.

SPENCER, MASS., Nov. 14, 1898.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I herewith submit my report.

The illegal fishing and taking of other game in this section has been very little, compared with other years. I have had but one complaint of illegal fishing. The parties who told me saw the trout the man had, but failed to get his name or find out where he lived, and I could do nothing about it. One complaint of snaring was reported which I investigated. I found that the man who set the snares owned the land on which they were set.

At the first of the season I warned all who attempted to take game or fish illegally that no mercy would be shown, and I think it has had the effect of deterring many.

Partridges and quail have been very scarce in this section this fall, very generally attributed to the ice storm we had.

Respectfully submitted,

A. D. PUTNAM,

Deputy.

MILFORD, MASS., Nov. 1, 1898.

Mr. E. A. BRACKETT, *Chairman Commissioners on Fish and Game.*

DEAR SIR:—In compliance with request to report a statement of work, arrests, fines, etc., I can only say I have very little to report, as there is very little game about here. Partridge especially is scarce, owing to pot hunters, and will be more so unless something is done to protect them. Ere long in this vicinity they will be a thing of the past. A few flocks of quail have been seen; they were of a small size.

As to arrests, I have made none.

Respectfully yours,

MORTIMER EDWARDS,

Deputy.

MILFORD, MASS., Nov. 4, 1898.

Hon. E. A. BRACKETT, *Chairman Fish and Game Commission.*

DEAR SIR:—I am sorry to say the game in this section of the State seems getting scarcer every year. While I have been in the

woods myself very little, all the hunters complain of but few birds, and very wild, which is not to be wondered at. There were many quail here in the spring, but only a few broods have been seen, and most of these are not half grown, which leads me to believe the early broods suffered from the wet season. The partridge cover has been largely destroyed in the past five years, hundreds of acres of pine having been cut, while many of the swamps and runs in the pastures have been cleaned up. There are few woodcock, mostly flight birds. I wish the open season might be shortened; sixty days, I think, would be enough, unless the birds are to be entirely cleaned out, in which case no close season will be needed.

There is but little fishing in this vicinity. One or two ponds contain black bass, but the trout brooks, like the trout in them, are few and far between.

No violations of the fish or game laws have been reported, though no doubt the law is broken more or less on the sly.

I saw three pheasants last Monday in a cornfield, one hen and two cocks, but have not heard of any young birds.

Respectfully submitted,

WM. N. PRENTISS,
Deputy.

MILLBURY, MASS., Oct. 28, 1898.

Fish and Game Commissioners.

GENTLEMEN: — I have the honor to submit the following report.

I was appointed as a deputy on May 23 of this year, consequently, I have served as a deputy only five months. During that time I have tried to do my duty in an efficient manner. I have made two arrests, secured a conviction in both cases. Both paid fines of \$15. Beside these, I assisted Deputy John F. Cumming of Worcester to arrest three others, who paid fines of \$10 each. These cases were all illegal fishing.

During the year I have placed 15,000 trout fry in the brooks; 5,000 were from the Sutton Hatchery at Wilkinsonville, the other 10,000 were procured from the United States Fish Commission. I have watched these fry, and they appear to have done well. Last week I saw a number of trout about four inches long. I think they were the fry I put in.

I have had very few violations of game laws brought to my attention this fall. Only one case of snaring has come to my immediate attention. In that case the offender has decamped. However, there is evidence enough to convict, and he will be arrested promptly if he returns.

I think game is a little above the average this year. Quail are more numerous than ever before, ruffed grouse about as usual. The flight of woodcock now on is good. I have observed more of these birds this year than ever before. I would call your attention to the fact that there are several apparently wild deer in this vicinity, one large buck frequently seen, a doe and a well-grown fawn with her has also been seen.

Very respectfully,

GEORGE E. WHITEHEAD,
Deputy.

WESTFIELD, MASS., Oct. 31, 1898.

E. A. BRACKETT, *Chairman.*

DEAR SIR:—I herewith submit report of work done since my appointment as deputy.

I found but one violation of the laws. The fact of a warden being in this vicinity tended to check illegal acts.

On May 2 on one of the best trout streams I found a large box which the flow of the stream passed through. I had it removed. I have made no arrests. I have noticed a decided increase in trout the past season, also black bass. Ruffed grouse and woodcock are increasing; quail decreasing.

Yours respectfully,

W. J. MORTON,
Deputy.

GOSHEN, NOV. 8, 1898.

E. A. BRACKETT.

DEAR SIR:—It has been a very favorable season in this section for trout, as it also was last year, and the fishing has greatly improved; have heard of several large catches.

We received from the State 10,000 young fry last spring, and I conclude from observation this fall that they are doing well.

I hear complaints from sportsmen that partridges are not plenty and have seen very few myself this fall. The cold, wet weather of the last two springs has been very unfavorable to young birds. Woodcock are fairly plentiful, quail somewhat scarce.

But one arrest has been made for fishing on private grounds; fined \$15. I think there has been but little illegal hunting or fishing the past season, as I have heard of but very little.

Respectfully,

SHERIDAN E. BARRUS,
Deputy.

THORNDIKE, MASS., Nov. 31, 1898.

Hon. E. A. BRACKETT, *Chairman Commissioners on Fish and Game.*

DEAR SIR:—I have the honor to report that game has been unusually plentiful this season. There has been less illegal shooting and fishing done here than in previous years, which accounts for the abundance of game.

Some fine catches of trout in local streams were made here during the open season. Sportsmen and people in general are getting educated to respect the law.

Our woods are well filled with partridges, rabbits and gray squirrels. Woodcock and quail are rather scarce. One or two deer have been seen within the limits of the town, but no attempt has been made to kill them or capture them in any way. No arrests have been made for violations.

Our rivers are well stocked with pickerel and perch. Bass has not been so plentiful as last season in this section, a fact which is attributed to the unusual heavy rains and high water, which have sent them down the river to the Connecticut River. I think bass could be planted in one or two ponds here to good advantage.

No snaring or ferreting have been reported, and it is safe to say that the laws relative to fish and game have been well observed.

Respectfully,

JOHN F. LUMAN,
Deputy.

NORTH BROOKFIELD, MASS., Nov. 2, 1898.

Mr. E. A. BRACKETT, *Chairman Commissioners on Fish and Game.*

DEAR SIR:—The fish and game laws in this vicinity have been very well observed during the year. While I am convinced there has been some illegal hunting with ferrets, I have been unable as yet to catch the offenders. I think one paid deputy could do more in two months than all we have now do in the whole year. Quail and partridge average about the same as last year. The trout fishing in our streams has been better than for years. Think a couple of close seasons on both fish and game would suit the sportsmen in this vicinity.

Respectfully yours,

T. J. MANLY,
Deputy.

NORTH ADAMS, MASS., Oct. 31, 1898.

Hon. E. A. BRACKETT, *Chairman.*

DEAR SIR:—I respectfully submit the following report of the fish and game in my vicinity.

I have given as much attention as I possibly could for the prevention of killing and catching fish and game out of their seasons and unlawfully. I have greatly stopped the fishing and hunting on Sundays, with the kind assistance of the press and Chief Kendall. The territory I have is almost too much for one man to cover.

Early last spring deer were very plentiful about here. Four deer having died from the effects of exhaustion and injuries received while being chased by dogs, I had four dogs killed, but could not find any owners. Was kept very busy for two weeks protecting the deer, and was under quite an expense for teams and car fare, to say nothing of my time. Now, it seems to me that the State ought to stand the expense of teams and car fare.

The trout season in this vicinity was very good. I have stopped the selling of small trout about here; heretofore this city was a great market.

Woodcock has been more plentiful than for years. Rabbits, it is reported, will be plenty. A large number of partridges are being brought in. I was on Florida Mountain two days the past week, and pulled up 126 partridge snares, and am in hopes of getting the party that set them in a few days.

Respectfully yours,

A. M. NICHOLS,
Deputy.

PITTSFIELD MASS., Nov. 7, 1898.

E. A. BRACKETT, *Chairman Commissioners on Fish and Game.*

DEAR SIR:—In compliance with your request, I herewith make the following report.

Trout fishing this year has been first class, and our boys have had fine luck, some experts catching as high as eighteen pounds in one day. The largest one I have had the pleasure of catching weighed two and one-quarter pounds. Parties come from all sections to enjoy the sport.

As to birds, woodcock shooting has been the best we have had in years. Partridge shooting is fair, but pot hunters are busy all the time, and we find snares all around. I have taken up all I could find, though one should put his whole time to it, in order to get the persons who set them. I have done the best I could, but was handicapped by the fact that I have to pay all expenses of following it up from my own pocket.

I have taken up six set lines and destroyed one large net found in Stockbridge. I was sent for from there and shown the net, but no

one could tell to whom it belonged, and, as no one would own it, I cut it up and destroyed it. I have made two arrests for snaring trout, and two for taking trout out of season; both cases papers filed on payment of costs. Have had complaints about ferrets, which I will look up as soon as snow comes.

We have pot hunters from Connecticut who come here and shoot birds and take them into their State. The people here find fault about it, but never enter complaint until it is too late to get the parties. We have also a great many foxes, which do great damage to our birds, and I think a bounty should be placed on them to get them out of the way, for we find their work every time we go out.

I was up to Adams and through the section where the deer were killed last spring, but could do nothing, as the parties who did the work had been posted.

Respectfully submitted,

BENJAMIN SMITH,
Deputy.

[E.]

LEGISLATION.

Acts of 1898.

[CHAPTER 124.]

AN ACT TO MORE EFFECTUALLY PREVENT THE UNLAWFUL USE OF
FERRETS FOR HUNTING PURPOSES.

Be it enacted, etc., as follows :

The possession of a ferret in any place where the game mentioned in section six of chapter two hundred and seventy-six of the acts of the year eighteen hundred and eighty-six, as amended by chapter two hundred and fifty-four of the acts of the year eighteen hundred and ninety-one, might be taken or killed, shall be presumptive evidence that the person having such ferret in possession has used the same for taking and killing game in violation of said section. [*Approved March 3, 1898.*]

[CHAPTER 181.]

AN ACT RELATIVE TO THE PRESERVATION OF DEER.

Be it enacted, etc., as follows :

SECTION 1. Whoever before the first day of November in the year nineteen hundred and three, hunts, chases or kills a deer, except his own tame deer kept on his own grounds, shall forfeit for every such offence one hundred dollars.

SECTION 2. Chapter one hundred and sixty-nine of the acts of the year eighteen hundred and eighty-three and all acts and parts of acts inconsistent herewith are hereby repealed. [*Approved March 15, 1898.*]

[CHAPTER 195.]

AN ACT RELATIVE TO THE OPEN SEASON FOR SHOOTING SCOTERS OR
COOTS.

Be it enacted, etc., as follows :

SECTION 1. Section one of chapter two hundred and five of the acts of the year eighteen hundred and ninety-four is hereby amended by inserting after the word “species,” in the seventh line, the words :

— except the scoters commonly called coots, — and by inserting after the word “September”, in the eighth line, the words: — or any of the scoters commonly called coots, between the twentieth day of May and the first day of September, — so as to read as follows: — *Section 1.* Whoever takes or kills a pinnated grouse at any time, or a woodcock, or a ruffed grouse, commonly called a partridge, between the first day of January and the fifteenth day of September, or a quail between the first day of January and the fifteenth day of October, or a wood or summer duck, black duck or teal, or any of the so-called duck species, except the scoters commonly called coots, between the fifteenth day of April and the first day of September, or any of the scoters commonly called coots, between the twentieth day of May and the first day of September; and whoever buys, sells or has in his possession any of the birds named in this act and protected thereby, during the time within which the taking or killing thereof is prohibited, whenever or wherever the aforesaid birds may have been taken or killed, shall be punished by a fine of twenty dollars for every bird so taken or killed, or had in possession: *provided, however,* that any person, firm or corporation dealing in game or engaged in the cold storage business, may buy, sell or have in possession, and any person may buy from such person, firm or corporation, and have in possession, if so bought, quail from the fifteenth day of October to the first day of May; and any such person, firm or corporation, may have in possession on cold storage, quail, and may buy, sell and have in possession pinnated grouse, wild pigeons and any of the so-called shore, marsh or beach birds, or of the so-called duck species, at any season, if said quail, grouse or other birds have not been taken or killed in this Commonwealth contrary to the provisions of this act.

SECTION 2. This act shall take effect upon its passage. [*Approved March 19, 1898.*]

[CHAPTER 205.]

AN ACT RELATIVE TO FINES AND FORFEITURES UNDER THE LAWS FOR
THE PROTECTION OF FISH AND GAME.

Be it enacted, etc., as follows:

SECTION 1. Section three of chapter three hundred and ninety of the acts of the year eighteen hundred and ninety is hereby amended by inserting after the word “to”, in the second line, the words: — such of, — and by inserting after the word “commissioners”, in the third line, the words: — as receive compensation from the Common-

wealth,—so as to read as follows:—*Section 3.* All moieties of fines and forfeitures from prosecutions, which may accrue to such of the deputies appointed by said commissioners as receive compensation from the Commonwealth, shall be paid into the treasury of the Commonwealth.

SECTION 2. This act shall take effect upon its passage. [*Approved March 22, 1898.*]

[CHAPTER 339.]

AN ACT RELATIVE TO THE PROTECTION OF CERTAIN BIRDS.

Be it enacted, etc., as follows:

SECTION 1. Chapter five hundred and twenty-four of the acts of the year eighteen hundred and ninety-seven is hereby amended by inserting after the word “eighty-six”, in the fourth line, the words:—whether taken in this Commonwealth or elsewhere,—and by adding at the end of said chapter the words:—nor to non-residents of the Commonwealth passing through it or temporarily dwelling within the limits thereof,—so as to read as follows:—Whoever has in his possession the body or feathers of any bird whose taking or killing is prohibited by section four of chapter two hundred and seventy-six of the acts of the year eighteen hundred and eighty-six, whether taken in this Commonwealth or elsewhere, or wears such feathers for the purpose of dress or ornament, shall be punished as provided in said section: *provided*, that this act shall not be construed to prohibit persons having the certificate provided for in said section from taking or killing such birds; and *provided, further*, that this act shall not apply to natural history associations or to the proprietors of museums, or other collections for scientific purposes, nor to non-residents of the Commonwealth passing through it or temporarily dwelling within the limits thereof.

SECTION 2. This act shall take effect on the first day of April in the year eighteen hundred and ninety-nine. [*Approved April 14, 1898.*]

[CHAPTER 421.]

AN ACT TO AUTHORIZE THE COMMISSIONERS ON INLAND FISHERIES AND GAME TO LEASE BLACK POINT POND, LITTLE BLACK POINT POND AND QUEENAMES COVE, IN THE COUNTY OF DUKES COUNTY.

Be it enacted, etc., as follows:

SECTION 1. The commissioners on inland fisheries and game, or any two of them, may, in the name of the Commonwealth, lease for

a term not exceeding twenty years, the bodies of water known as Black Point pond, Little Black Point pond and Queenames cove, respectively, in the county of Dukes County, and any of the arms, coves and bays connected therewith, for the purpose of cultivating useful food fish, for such time, to such persons and on such terms and conditions as they may judge that the public interest requires: *provided*, that nothing in this act shall impair or abridge the right of any citizen of the Commonwealth to take fish in said ponds or in the waters connected therewith, by hook and line, at such times and under such restrictions and limitations as are permitted under laws of the Commonwealth now or hereafter enacted relating to the taking of fish by hook and line.

SECTION 2. Before making such lease the commissioners shall appoint a time and place for a hearing upon the application therefor, and shall give notice thereof to the town within whose limits the said bodies of water lie.

SECTION 3. The town within whose limits the said bodies of water lie, may, for the purpose of cultivating useful food fish, under such conditions and restrictions as the commissioners may prescribe, take a lease of said bodies of water and appropriate money therefor.

SECTION 4. The commissioners may fix the limits of the said ponds, and the arms, coves and bays connected therewith, which limits being recorded in the registry of deeds for said county shall be taken to be the legal limits thereof for all the purposes of this act.

SECTION 5. The commissioners shall have the custody of all leases made under the provisions of this act, and may cause any agreements, rights, reservations, forfeitures and conditions therein contained to be enforced, and for that purpose may institute proceedings in the name of the Commonwealth, and may take possession of any premises for breach of conditions of the lease, and after revesting the Commonwealth therewith may again lease the same.

SECTION 6. This act shall take effect upon its passage. [*Approved May 11, 1898.*]

Resolves of 1898.

[CHAPTER 60.]

RESOLVE TO PROVIDE FOR THE ESTABLISHMENT OF A FISH HATCHERY
IN THE COUNTY OF BERKSHIRE.

Resolved, That there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding twenty-five hundred dollars, to be expended under the direction of the commissioners on inland

fisheries and game for the purpose of establishing and maintaining in the county of Berkshire a hatching house for the propagation of trout, salmon and other fish suitable for the inland waters of this Commonwealth, and for the purchase of land and the erection of buildings necessary for that purpose. [*Approved April 12, 1898.*]

[CHAPTER 30.]

RESOLVE TO PROVIDE FOR THE PROCURING OF A STEAMER TO BE USED FOR THE ENFORCEMENT OF THE FISH AND GAME LAWS.

Resolved, That there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding fifty thousand dollars, to be expended under the direction of the chief of the district police, subject to the approval of the governor and council, for procuring a steamer to be used under the direction of said chief of the district police in enforcing the laws of the Commonwealth relating to fish and game. The steamer procured under the provisions of this resolve shall be built in this Commonwealth. The chief of the district police is hereby authorized to sell the steamer now owned by the Commonwealth, known as the Ocean Gem, and he is directed to pay the proceeds of such sale into the treasury of the Commonwealth. [*Approved March 22, 1898.*]

[CHAPTER 111.]

RESOLVE RELATIVE TO CERTAIN EXPENSES TO BE INCURRED BY THE CHIEF OF THE DISTRICT POLICE IN ENFORCING THE LAWS RELATIVE TO INLAND FISHERIES AND GAME.

Resolved, That there be allowed and paid out of the treasury of the Commonwealth a sum not exceeding five thousand dollars, to be expended by the chief of the district police for the purpose of leasing and paying the running expenses of a suitable boat to be used temporarily in the enforcement of the laws relative to inland fisheries and game, until the new boat now under construction is completed, and for the purpose of fitting up the new boat when completed and paying its running expenses during the present year. [*Approved June 14, 1898.*]

[F.]

LOBSTER RETURNS.

1898.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg- bearing Lobsters liberated.
Manuel Grace, . . .	Boston, . . .	2,642	105,766	1,913
J. K. Ferreira, . . .				
Antone P. Silva, . . .				
Mathew P. Gile, . . .				
Antone Silva, . . .				
Antone Ferreira, . . .				
Antonio Costa, . . .				
Rogers & Pinta, . . .				
Govera & Cross, . . .				
Manuel Silva, . . .				
John M. Mora, . . .				
J. P. Serrilha, . . .				
Jose Alberto, . . .				
Joaquin Perry, . . .				
Joseph Gasper, . . .				
M. Rosa Dias, . . .	Barnstable, . . .	68	2,049	147
Andrew Ferreira, . . .				
Joseph P. Silva, . . .	Beachmont, . . .	80	4,304	38
J. E. Cahoon, . . .				
N. B. Cahoon, . . .	Bay View, . . .	55	4,500	74
John Monroe, . . .				
Thomas Mason, . . .	Bournedale, . . .	230	8,229	293
Frank C. Leonard, . . .				
Albert Nightingale, . . .				
A. E. Nightingale, . . .				
L. L. Nightingale, . . .	Beverly, . . .	310	13,893	411
Albion Frye, . . .				
Wm. H. Kennedy, . . .				
C. D. Davis, . . .				
Chas. C. Foster, . . .				
Frank B. Harris, . . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
H. W. Tolman, . H. P. Taylor, . A. L. Manter, . D. B. Blackman, . H. C. Phillips, .	Brant Rock, .	252	10,410	185
Austin E. Smith, . E. A. Poole, . L. E. Atherton, . A. T. Poole, . Wm. S. Mayhew, . L. E. Cottle, . Onslow Stewart, .	Chilmark, .	170	6,288	69
L. S. Thurston, . Augustus Hadaway, . Henry A. Jordan, . Geo. Atwell, . R. F. Swift, . Geo. Boutin, . Chas. Gerrow, . Chas. Boutin, . Chas. Rogers, . H. S. Sampson, .	Chiltonville, .	416	30,631	805
Arthur Baker, . B. N. Bloomer, . E. Z. Ryder, . F. W. Baker, . Chas. W. Jones, . H. F. Gould, . G. W. Bloomer, . Sylvester Eldredge, . Robert Ellis, . Oscar M. Gould, . W. F. Hitchings, . R. T. Bearse, . W. R. Bloomer, . J. D. Bloomer, . F. Bloomer, . J. F. Eldredge, . F. B. Nickerson, . B. Bassett, . Wm. H. Patterson, . S. Patterson, .	Chatham, .	1,228	18,499	486

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
J. J. Grassie, . . .	Cohasset, . . .	780	55,619	1,183
J. A. Silvia, . . .				
M. S. Almas, . . .				
Andrew Peterson, . . .				
Oscar Anderson, . . .				
Manuel S. Thomas, . . .				
Robert Ainslies, . . .				
Joseph Bandura, . . .				
Chas. Anderson, . . .	Cuttyhunk, . . .	645	36,589	983
Levi Cadoza, . . .				
Frank Peters, . . .				
Samuel E. Jackson, . . .				
H. J. Allen, . . .				
C. C. Allen, . . .				
J. F. Cornell, . . .				
H. W. Rotch, . . .				
Joshua Keeney, . . .				
C. C. Church, . . .				
J. H. Tilton, . . .				
F. M. Cottle, . . .				
John Manley, . . .	South Duxbury, . . .	366	30,482	235
Robert Jackson, . . .				
O. H. Stetson, . . .				
J. W. Tilton, . . .				
Clarence Smith, . . .				
E. W. Cook, . . .				
Geo. F. Freeman, . . .				
S. G. I. Wardsworth, . . .				
C. E. Peterson, . . .	Dennis, . . .	26	453	66
F. E. Wardsworth, . . .				
F. E. Phillips, . . .				
Isaac Symmes, . . .				
O. C. Hunt, . . .				
W. E. Peterson, . . .	Dartmouth, . . .	65	1,497	39
John W. Stone, . . .				
Geo. E. Hall, . . .	Edgartown, . . .	89	3,615	218
Lewis Anderson, . . .				
J. H. Butts, . . .				
John Bunker, . . .	Edgartown, . . .	89	3,615	218
Manuel De Loura, . . .				
H. O. Hillman, . . .				

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg- bearing Lobsters liberated.
Lawrence Densmore, W. A. Grew, . . . Daniel E. Jennings, . E. E. Baker, . . . Fernando Josef, . . M. C. Stewart, . . .	Falmouth, . . .	125	2,947	578
H. N. Wilber, . . .	Fairhaven, . . .	23	240	22
Joseph Douglass, . . B. F. Parsons, . . . D. N. Mehlman, . . . H. W. Nelson, . . . A. & H. Parsons, . . E. D. Rust, . . . Joseph Parsons, . . .	Gloucester, . . .	400	29,980	277
C. H. Ryan, . . .	Gay Head, . . .	30	1,084	93
C. R. Peterson, . . . Lyman Sears, . . . W. M. Cushing, . . . B. P. Willamson, . . Geo. Delano, . . . W. H. Englested, . . W. H. Tolman, . . . Wilfred Keene, . . . E. R. Lapham, . . . Thos. Pezzy, . . .	Green Harbor, . .	575	27,382	409
P. F. Phinney, . . .	Hyannis, . . .	34	469	—
Dan'l M. Donald, . . Andrew Galliano, . . J. & D. Reed, . . . A. B. Cleverley, . . . Eben T. Pope, . . . B. F. Pope, . . .	Hull, . . .	385	15,886	207
Henry L. Cook, . . . A. W. Montgomery, . Chas. A. Bailly, . . . Rust & Grant, . . . W. B. Atkinson, . . .	Ipswich, . . .	114	6,567	160
Frank C. Chandler, . . James C. Kelley, . . H. L. Loring, . . . Chas. F. Stranger, . .	Island Creek, . .	165	7,982	14

Lobster Returns—Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg- bearing Lobsters liberated.
R. Welles, . . .	Manomet, . . .	1,385	55,819	1,115
L. B. Briggs, . . .				
D. H. Briggs, . . .				
Wm. Harlow, . . .				
A. L. Holmes, . . .				
C. W. Holmes, Jr., . . .				
F. R. Peterson, . . .				
T. L. Blake, . . .				
W. H. Peterson, . . .				
M. G. Foster, . . .				
James Gould, . . .				
Chas. Wakefield, . . .				
C. H. Dixon, . . .				
D. W. Nightingale, . . .				
C. H. Fisher, . . .				
W. J. Nightingale, . . .				
Thos. Stevens, . . .				
Saml. Bartlett, . . .				
J. H. Valler, . . .				
M. L. Chandler, . . .				
Stephen Holmes, . . .				
Henry Dodge, . . .				
B. B. Abbé, Jr., . . .				
G. W. Frost, . . .				
Thos. Jordan, . . .				
Robert Richardson, . . .				
Chas. Wilson, . . .	Nantasket, . . .	132	6,771	122
C. H. Place, . . .				
Geo. L. Hatch, . . .				
C. W. Taylor, . . .	Nahant, . . .	95	5,770	22
G. W. Taylor, . . .				
C. E. Gove, . . .				
Joseph Souza, . . .	New Bedford, . . .	344	9,756	748
Manuel Gracia, . . .				
Manuel Simmons, . . .				
Joseph Fratus, . . .				
G. B. Taber, . . .				
John Sater, . . .				
Manuel F. George, . . .				
A. J. Frates, . . .	Nantucket, . . .	679	17,993	951
G. E. Coffin, . . .				
J. H. Dennis, . . .				
J. A. Backus, . . .				
Jesse Leel, . . .				

Lobster Returns—Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
A. B. Brooks, . . Geo. H. Dunham, . . A. P. Dunham, . . J. P. West, . . E. F. Snow, . . A. A. Norcross, . . Wm. Norcross, . . John Watkins, . . J. H. Eldredge, . . M. W. Dunham & Co., . .	Nantucket, . .	679	17,993	951
Caleb Hayden, . . Daniel B. Gould, . . F. H. Hayden, . .	Orleans, . .	93	2,290	121
A. W. Newcomb, . . F. M. Bowley, . . J. D. Smith, . . J. C. Lurten, . . Geo. W. Freeman, . . J. W. Savage, . . Wm. H. Kenney, . . W. C. Snow, . . J. H. Little, . .	Provincetown, . .	330	10,134	1,400
S. P. Burgess, . . J. R. Thurston, . . A. C. Sampson, . . A. M. Watson, . . J. H. Bagnall, . . Frank Paro, . . Nightingale & Parlow, . . W. R. Thomas, . . Chas. H. Davis, . . A. B. Rogers, . .	Plymouth, . .	445	23,781	156
C. N. Morgan, . .	Pigeon Cove, . .	60	3,352	136
John A. Turner, . . C. P. Peterson, . .	Quincy, . .	70	3,659	15
John Elvander, . . Wilson Perry, . . Freeland Perry, . . C. E. Hoxie, . . E. W. Haines, . .	Sandwich, . .	116	1,380	121

Lobster Returns—Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
E. A. Greenough, . C. S. Brown, . C. H. Berry, Jr., . John Clark, . G. W. Berry, .	Salem, . .	278	9,329	391
H. F. Cunningham, . A. H. Gibbs, .	Sagamore, . .	53	1,147	75
W. J. Jones, . G. A. R. Horton, . R. A. Douglass, .	Swampscott, .	170	8,938	183
L. W. Mayhew, . A. E. Reed, .	Squibnocket, .	45	1,662	32
J. K. Gannett, . E. G. Pratt, . E. P. Pratt, . Chas. Decost, . Francis Mulkerne, . Everett Litchfield, . Thomas Dwyer, . Thomas Flynn, . Robert Ohearne, . J. W. Spooner, . D. H. Ward, . Daniel Ward, .	Scituate, . .	508	22,892	421
Chas. H. Lord, . . .	Salisbury, . .	6	131	1
J. A. Mayhew, . G. A. Rogers, . Geo. W. Manter, .	Tisbury, . .	51	1,083	62
Silas Ryder, . W. W. Freeman, . C. H. Collins, . J. C. Myricks, .	Truro, . . .	104	1,488	137
E. L. Chadwick, . M. F. Cleveland, . Thomas Smith, . H. M. McLellan, . F. M. Chase, .	Vineyard Haven, .	80	1,437	110
T. J. Brightman, . Geo. A. Gifford, .	Westport, . .	75	2,266	144

Lobster Returns — Concluded.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
N. C. Phinney, . . . Walter Nickerson, . . . J. F. Cook, . . . A. C. Swain, . . . Thomas Hinckley, . . . F. R. Gifford, . . . N. N. Bearse, . . . H. P. Phinney, . . . B. E. Stewart, . . . P. M. Stewart, . . . O. C. Grinnell, . . . A. D. Wilde, . . . J. E. Flinkfelt, . . . L. L. Adams, . . . Alfred Nickerson, . . . J. J. Veeder, . . .	Woods Holl, . . .	242	12,813	1,185
J. E. Curran, . . .				
John Wardsworth, . . .				
J. B. Wyman, . . .				
Roland Kelley, . . .				
Herbert Lovell, . . .				
Totals (men, 340), . . .				
J. E. Curran, . . .	Wellfleet, . . .	10	236	16
John Wardsworth, . . . J. B. Wyman, . . .	Winthrop, . . .	90	6,822	98
Roland Kelley, . . . Herbert Lovell, . . .	Yarmouth, . . .	50	1,032	56
Totals (men, 340),	16,195	720,413	19,931

Comparisons of Returns of Lobster Fisheries.

YEAR.	Number of Men.	Number of Traps.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Increase of 1894 over 1893, . . .	54	3,291	—	2,156
Decrease of 1894 below 1893, . . .	—	—	52,898	—
Increase of 1895 over 1894, . . .	—	—	—	—
Decrease of 1895 below 1894, . . .	48	3,098	140,469	554
Increase of 1896 over 1895, . . .	76	4,836	39,031	—
Decrease of 1896 below 1895, . . .	—	—	—	3,873
Increase of 1897 over 1896, . . .	—	—	—	—
Decrease of 1897 below 1896, . . .	65	3,212	99,123	6,751
Increase of 1898 over 1897, . . .	—	—	—	—
Decrease of 1898 below 1897, . . .	48	2,634	175,860	3,788

GILL AND SWEEP NETS.

RETURNS, 1898.

GILL AND SWEEP NETS.

1898.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Thomas James,	Bay View,	-	-	5,700	-
F. G. Kelley,	Barnstable,	-	58,000	-	-
Herbert Lovell,					
I. N. Babbitt,	Berkley,	1,316	395,290	-	-
E. D. Perry,					
C. N. Simmons,					
J. H. Newcomb,	Brewster,	-	20,158	-	-
W. W. Hallett,	Centreville,	-	-	-	-
C. E. Bearse,					
Robert Ainslies,	Cohasset,	-	512	-	-
J. F. Eldredge,	Chatham,	1	587	87	138
H. F. Gould,					
R. F. Nickerson,					
John S. Ryder,					
B. E. Basset,					
C. D. Hammond,					
F. Bloomer,					
Wm. H. Patterson,					
Albert W. Smith,					
Geo. W. Bloomer,					
Robert Ellis,					
C. C. Nickerson,					
R. T. Bearse,					
W. F. Hitchings,					
J. D. Bloomer,					
S. Patterson,					
Wm. R. Bloomer,					
Isaac Symmes,	South Duxbury,	-	-	-	-
C. N. Simmons,	Dighton,	650	225,000	-	-
Walter S. Osborne,	Edgartown,	-	281,522	-	-
Joseph Parsons,	Gloucester,	-	9,825	27,550	-
Edwin Taylor,	Hyannis,	-	-	-	-
A. W. Riley,	Lanesville,	-	-	11,675	-
L. B. Briggs,	Manomet,	-	3	-	60
Cornelius Briggs, Jr.,					
Rufus Savery,	Marion,	-	2,235	-	-
B. F. Stevens,	Marblehead,	-	2,350	-	2,610
Joseph Thurlow,	Newburyport,	-	-	255,000	-
C. A. Caswell,					
E. G. Noyes,					
Thurlow & Short,					

GILL AND SWEEP NETS.

1898.

Striped Bass.	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	-	-	1,324	-	-	-	-	-	-
-	-	-	-	-	-	-	98	-	5	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1	-	-	7,226	-	-	-	-
-	-	-	-	-	-	-	377	-	-	-	-	-	-
203	20	1,246	-	-	21	28	9,403	1	2,541	-	-	-	-
-	-	-	-	-	-	-	423	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	162	-	-	-	-	-	-	-	-	-	-	18,200
-	-	-	-	-	-	-	2,168	-	-	-	-	-	-
-	-	17	-	-	-	-	-	-	294	51	-	-	-
-	-	-	-	-	-	-	946	-	-	-	-	-	-
-	-	-	-	1	-	-	462	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	70	4	25,492	-	-	-	-	-	-
-	-	-	-	-	-	-	6,000	-	-	-	-	-	1,152,043

Gill and Sweep Nets—Continued.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Geo. H. Hamblin, . . . J. H. Eldredge, . . . Arthur P. Dunham, . . . H. E. Dunham, . . . C. B. Cathcart, . . . A. W. Small, . . . Mannell Thomas & Co., . . . C. S. Glidden & Co., . . . W. I. Fisher, . . . A. J. Barrett, . . . Leander Small, . . . John Watkins, . . . Marcus W. Dunham, . . . E. W. Ramsdell, . . .	Nantucket, . . .	-	-	1,202	99
Herbert S. Cook, . . . Daniel Williams, . . . L. P. Hatch, . . . Wm. M. Wareham, . . . Joseph Ellis, . . . Manuel Tarvis, . . . J. L. Worth, . . . J. C. Lurten, . . . J. F. Atkins, . . . Jonah Newcomb, . . . J. D. Smith, . . . A. A. Mayo, . . . Frank Days, . . . John R. Swartz, . . . W. W. Freeman, . . . Jesse Ghen, . . . S. T. Atwood, . . . G. H. Hurlburt, Jr., . . . W. M. Elwell, . . . H. L. Mayo, . . . Martin Silva, . . . C. H. Emery, . . . Zephaniah Rich, . . . D. L. Smith, . . . J. W. Savage, . . . Jonathan Sparrow, . . . J. E. Weeks, . . . F. I. Sears, . . . Geo. W. Freeman, . . . Joseph Patrick, . . . J. G. Rand, . . . G. A. Brown, . . . Reuben Ryder, . . . Geo. Lewis, . . . E. H. Tullson, . . . H. N. Smith, . . . J. R. Williams, . . . R. O. Kelley, . . . R. W. Cook, . . . E. Q. Weeks, . . . Geo. Crosby, . . . J. H. Emery, . . . Wm. Dyer, . . . J. F. Silva, . . . E. W. Smith, . . . Prince Freeman, . . . A. L. Daggett, . . . J. W. Fuller, . . . Manuel Carter, . . . Bangs & Lewis, . . . S. L. Ellis, . . . J. H. Little, . . . J. S. Smith, . . . B. R. Kelley, . . . E. A. Weldon, . . . Geo. H. Lewis, . . . B. Silvey, . . . J. A. Cobb, . . .	Provincetown, . . .	-	-	64,895	765

Gill and Sweep Nets — Continued.

	Striped Bass.	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
1	433	355	1	8	20	1,806	3,051	7	28,933	1	184	69	3,876	
862	-	852	-	332	605	48	199,156	12	20,145	8,700	302,809	-	65,622	

Gill and Sweep Nets—Concluded.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Wm. Harlow,	Plymouth,	-	-	-	-
G. B. & E. Williams, Gustavus King, }	Raynham,	1,385	251,375	-	-
Melvin Rich,	Rockport,	75	3,830	1,271	2,980
J. K. Gannett,	Seituate,	1	297	18	5,103
John Elvander, E. W. Haines, Freeland E. Perry, S. F. Cushing, Chas. E. Hoxie, J. D. Smith, }	Sandwich,	-	67	-	226
Frank E. Hunt,	Salisbury,	-	-	-	189,500
J. T. Stevens, Silas Ryder, T. D. Smith, John Myricks, C. H. Collins, W. W. Freeman, }	Truro,	-	-	-	-
H. P. Macomber,	Taunton,	168	84,187	-	-
W. P. Doane, J. E. Curran, F. A. Snow, }	Wellfleet,	-	242,325	2,400	-
F. F. Besse,	Wareham,	-	303,000	-	-
Sylvanus Robbins,	Yarmouth,	-	13,506	-	-
Totals (137 men), . . . . .	. . . . .	3,596	1,894,069	369,798	201,481

Gill and Sweep Nets—Concluded.

Striped Bass.	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	-	-	178	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	1,420	-	-	-	-	-	-
1	1	-	-	-	118	-	188	-	-	-	-	-	2,077
-	-	-	-	-	-	-	3,788	-	-	-	-	-	-
-	-	-	-	-	-	-	3,739	-	-	-	-	-	319,800
-	-	-	-	-	-	-	1,810	-	283	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	1,000	-	34	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,067	454	2,632	1	341	834	1,887	261,023	20	59,461	8,752	302,993	69	1,561,618

POUNDS AND WEIRS.

1898.

Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	150	-	28,401	10	-	20	310	500	-
3	165	-	-	-	26	252,600	-	158	1,071	19,782	11,700	14,081
3	193	-	1	-	32	60,366	-	35	230	3,700	-	1,311
13,320	131	-	302	5,399	-	5,864	-	79	109	321	100,703	4,054
304,411	125,171	2	7,752	352	1,856	5,385	19	185	150	5,659	62,338	1,010
413,500	30,500	-	14,200	-	-	-	-	-	-	13,600	-	500,000
40,961	797	18	112	1,016	286	10,742	-	160	208	6,960	240,777	2,649
-	75	-	-	-	-	16	1	5,396	1,428	522	-	-
401,790	103,395	9	10,620	2,050	834	1,238	-	3	108	2,126	270	1,005
3	-	-	1	1,026	-	237,635	-	3	55	434	5,358	116,879
-	201	-	-	-	-	-	-	-	12	68,914	-	82,446
-	-	-	-	-	-	37,739	-	-	-	-	-	-
-	-	-	-	-	-	20,340	-	-	-	-	-	-
-	-	-	-	-	-	7,778	-	-	-	-	-	-
43	-	7	38	920	59	95,331	-	13	710	12,225	34,022	21,500
17	801	-	-	93,194	110	76,372	-	39	40	99,093	126,117	331,567

Pounds and Weirs—Concluded.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.
T. L. Mayo, . . .	Revere, . . .	-	-	-	995,050	66,100	-
Isaiah Spindell, . . .	Sandwich, . . .	-	-	-	-	-	-
G. A. Phinney, . . .	Sagamore, . . .	1	-	-	-	2,760	-
Chas. B. Jones, . . .	Swampscott, . . .	-	-	-	197,450	-	-
C. B. Coombs, . . .	Tisbury, . . .	1	30	20,790	15,657	3,568	33
H. N. Luce, . . .							
Jason Luce & Co., . . .							
O. S. Daggett, . . .							
Wm. L. Pease & Co., . . .							
G. W. Manter, . . .							
H. W. Daggett, . . .							
John R. Walker, . . .							
Atkins, Hughes & Co., . . .	Truro, . . .	2	241	1,900	1,941,075	23,065	-
W. F. Baker, . . .							
S. B. Atwood, . . .							
R. A. Rich, . . .							
Totals (58 men),	6	3,734	191,682	8,783,002	494,292	1,396

Pounds and Weirs — Concluded.

Seep.	Squeteague.	King fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	40	-	42,938	-	-	-	745	-	2,325
-	-	-	-	-	15	45,400	-	12	975	-	-	1,355
-	13	-	-	-	13	45,874	-	7	-	-	-	1,510
-	-	-	-	1,500	-	13,100	-	-	-	-	-	2,124
239,761	65,101	62	1,694	1,516	6,536	4,749	21	754	2,850	14,962	40,466	903
-	3,504	-	146	-	43	1,032,526	-	314	1,539	36,969	308,322	327,372
1,413,812	330,047	98	34,866	107,163	9,810	2,024,294	51	7,158	9,505	283,322	930,573	1,412,091

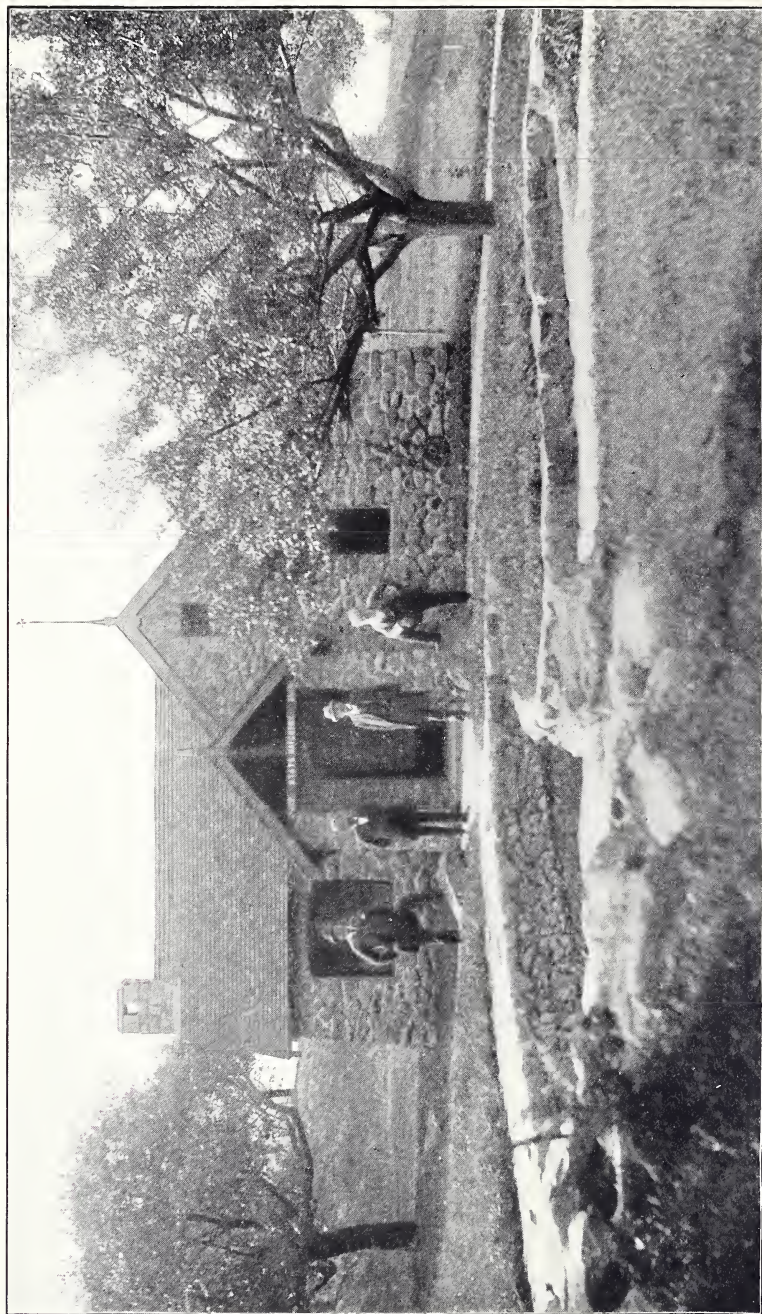
Comparison of Returns for the Years 1882 to 1898, inclusive.

Year.	Fisheries.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluesh.	Tautog.	Flounders and Plaich.	Squid.	Other or Bait Fish.
	Kind.	No.														
1882.	Pounds and welrs,	85	27,769	1,420,919	1,201,449	8,102	4,219	1,991,583	67,266	3,289,592	310	133,805	40,512	114,843	4,016	-
1883.	"	87	5,994	1,250,263	339,116	4,048,022	2,876	1,848,580	92,671	4,756,490	246	60,182	35,481	184,387	5,361	-
1884.	"	93	5,392	2,606,203	2,606,203	3,068,351	6,950	1,641,129	74,826	1,440,486	99	109,694	23,929	288,330	33,980	-
1885.	"	80	18,088	1,066,148	6,564,619	6,255	1,365	1,240,630	17,746	2,693,190	24	37,315	47,231	317,082	17,741	128,698
1886.	"	58	15,874	1,012,802	1,364,684	48,910	2,412	1,966,213	3,226	1,200,466	20	17,375	47,490	261,595	11,570	372,334
1887.	"	62	14,044	1,453,820	1,713,846	127,951	1,233	2,153,504	15,742	1,069,609	109	44,204	89,075	304,492	7,615	812,810
1888.	"	83	50,957	1,054,607	6,665,698	1,202,777	2,456	1,448,451	127,602	2,877,768	115	38,376	63,214	358,917	10,805	2,716,892
1889.	"	88	25,991	1,417,950	17,000,308	1,203,669	4,924	1,331,673	36,043	829,152	1,242	60,633	69,719	289,993	20,163	1,859,924
1890.	"	88	22,961	1,198,561	4,432,690	2,911,970	5,302	354,423	43,988	1,297,204	1,242	25,355	33,476	389,416	17,511	569,794
1891.	"	87	26,587	2,039,107	10,643,504	1,976,856	1,413	3,160,446	98,749	3,045,814	323	16,295	45,881	346,772	8,069	1,588,890
1892.	"	83	14,658	1,631,160	15,739,505	1,241,917	1,410	2,421,985	70,985	4,706,233	47	15,842	31,894	284,122	2,643,123	1,419,042
1893.	"	99	13,440	1,816,841	16,895,378	1,615,025	561	2,216,406	304,896	2,283,656	2,011	14,793	28,715	196,043	2,086,309	1,242,695
1894.	"	105	6,754	1,378,703	16,361,317	1,152,174	1,849	394,224	300,875	4,127,338	269	26,024	435,267	356,333	3,006,344	4,209,163
1895.	"	102	14,823	1,000,958	22,182,517	1,052,983	2,465	1,464,697	145,331	736,987	58	77	31,569	194,804	3,800,121	4,632,706
1896.	"	101	10,616	1,269,475	11,063,681	563,241	1,098	3,663,149	269,345	1,770,146	77	9,995	50,705	174,672	1,199,983	2,610,875
1897.	"	79	7,491	833,128	9,409,543	1,661,813	6,810	2,523,723	274,616	1,252,887	26	12,736	9,505	286,322	930,573	1,564,028
1898.	"	58	3,734	191,682	8,783,002	494,292	1,396	1,413,812	330,047	2,024,294	51	7,158	-	-	3,544	-
1899.	Traps, fykes and irregular returns,	8	-	5,150	252,685	7,750	-	-	-	288,466	-	-	-	3,123	2,060	76,073
1899.	Traps, fykes and irregular returns,	15	2,994	89,516	1,212,942	184,239	64	86	54	64,938	1	2,690	339	2,246	2,060	-
1899.	Gill nets and sea seines,	133	1,738	424,630	310,611	633	1,427	99,046	4,205	587,087	87	191,668	6,245	33,487	3,083	-
1899.	"	112	26	41,996	79,689	937,627	838	6,254	1,102	392,535	4	131,815	966	12,681	1,755	-
1899.	"	85	6,544	67,312	541,689	1,526	632	7,855	3,254	216,829	6	136,068	1,578	19,031	2,426	-
1899.	"	78	444	117,674	82,151	9,546	601	16,894	1,656	183,156	1	101,371	233	30,948	967	5,464
1899.	"	49	22	397,727	151,782	311	1,524	23,019	42	75,463	9	22,018	1,039	14,592	21,670	17,326
1899.	"	35	801	347,109	779,211	601	676	2,686	177,401	3	3	22,018	457	14,206	30,416	4,708
1899.	"	142	92,010	468,924	734,374	94,310	1,349	7,704	2,027	633,627	2,172	199,546	1,314	30,738	18,701	52,409
1899.	"	208	4,533	401,415	337,054	202,094	1,421	4,082	4,545	55,718	157	55,718	2,576	35,745	199,360	80,008
1899.	"	183	1,448	174,213	686,948	239,474	1,980	2,289	1,141	209,863	1,488	181,401	754	29,950	81,979	94,448
1899.	"	94	8,306	161,365	315,641	43,624	229	1,938	260	688,119	89	55,254	80	26,824	10,336	24,324
1899.	"	91	214	444,024	967,507	1,827	422	1,938	260	688,119	89	55,254	80	26,824	10,336	24,324
1899.	"	121	910	291,481	1,120,514	52,495	1	1,411	1,391	301,368	71	56,381	75	66,377	382	106,961
1899.	"	183	409	184,393	956,130	496,704	358	13	1,450	766,573	1,182	55,342	203	61,228	7,876	18,406
1899.	"	144	18,109	111,806	957,582	207,987	209	690	2,123	333,769	3	23,549	823	106,570	68,882	584,402
1899.	"	183	10,762	501,327	3,354,143	80,753	592	918	1,087	601,298	21	68,989	10,724	207,078	36,424	215,743

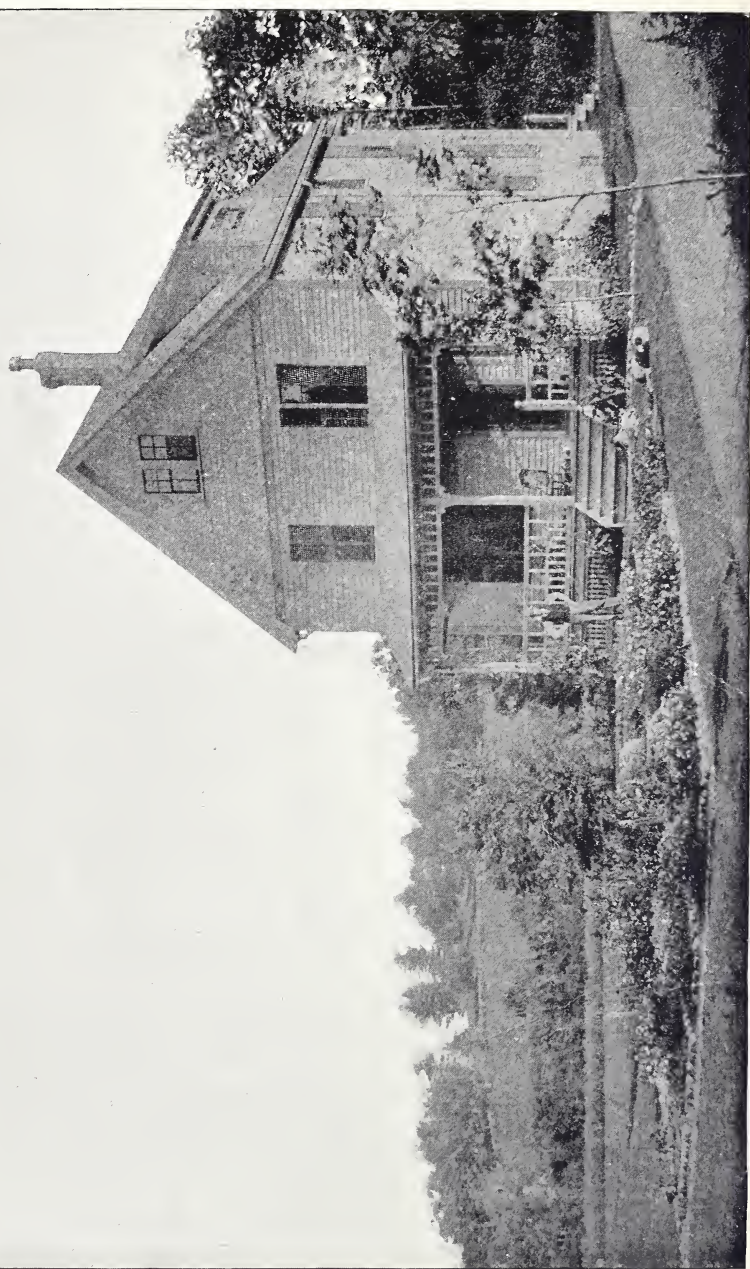
Comparison of Returns for the Years 1882 to 1898, inclusive — Concluded.

Year.	FISHERIES.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluenish.	Tautog.	Flounders and Plaish.	Squid.	Other Edible or Bait Fish.
	Kind.	No.														
1882,	Other fresh-water scines,	25	897	1,558,659												
1883,	"	23	391	1,762,950			234									
1884,	"	13	221	1,762,950			1,072									
1885,	"	13	391	1,762,950			897									
1886,	"	3	300	1,296,449												
1887,	"	6	300	797,365												
1888,	"	6	300	454,409												
1889,	"	19	6	1,026,042			4									
1890,	"	8		513,001												
1891,	"	6		738,310												
1892,	"	5		1,251,994												
1893,	"	9		794,936												
1894,	"	6		645,613												
1895,	"	7		1,093,947												
1896,	"	5		491,084												
1897,	"	6		709,774												
1898,	"	7		920,746												
1882,	Total returns,	261	44,734	4,446,280	1,512,060	8,735	5,929	2,090,526	71,471	3,876,599	397	325,473	46,757	148,330	7,049	
1883,	"	239	15,160	4,178,682	418,605	4,985,640	5,080	1,854,837	93,773	5,149,025	250	191,997	36,807	197,068	7,116	
1884,	"	205	17,699	2,353,781	3,347,892	3,099,997	7,582	1,648,984	78,080	1,657,315	105	245,762	30,507	397,971	36,406	
1885,	"	184	25,347	3,747,750	6,546,770	35,801	1,881	1,267,184	19,492	2,826,346	25	133,946	47,464	348,030	8,708	134,159
1886,	"	124	19,466	3,183,741	1,520,466	49,221	3,936	1,973,262	3,268	1,395,350	29	55,031	48,678	276,187	58,872	590,650
1887,	"	112	18,292	3,108,042	2,345,632	87,310	1,835	2,144,973	18,357	1,057,565	112	66,422	89,065	330,220	50,071	818,633
1888,	"	264	149,200	3,767,929	7,669,493	1,556,036	3,275	1,672,610	129,850	3,801,393	2,489	240,874	70,523	432,710	40,634	2,875,420
1889,	"	352	40,461	3,617,929	14,919,159	4,326,352	6,414	1,335,821	40,642	1,161,107	694	75,695	72,634	327,984	221,583	2,015,993
1890,	"	291	29,303	3,638,920	5,482,120	6,931,804	7,282	356,712	45,130	1,507,617	2,730	242,034	26,391	240,920	102,789	1,112,320
1891,	"	292	37,346	4,654,822	11,108,745	4,500,052	1,642	3,160,935	99,284	3,209,564	412	83,609	33,556	416,240	83,977	594,118
1892,	"	193	16,928	3,179,923	17,241,072	126,744	2,273	2,423,923	70,345	5,394,352	48	64,396	45,940	423,541	38,104	1,620,997
1893,	"	335	18,474	4,155,576	19,760,292	4,277,520	562	2,216,547	306,287	5,885,086	2,082	72,223	34,969	350,749	2,643,505	1,598,571
1894,	"	209	12,684	5,893,300	16,321,847	1,652,078	2,297	394,237	392,325	1,993,911	1,431	100,141	28,918	256,881	2,094,185	8,914,589
1895,	"	265	36,830	2,805,594	24,363,699	1,331,370	2,679	1,463,987	147,454	1,140,756	61	48,573	436,090	463,503	3,075,426	13,756,795
1896,	"	307	25,154	4,629,110	18,470,855	798,244	1,713	3,064,067	270,432	2,371,444	98	78,984	42,451	401,882	3,836,545	4,498,824
1897,	"	258	20,630	2,507,285	18,036,624	1,922,064	8,708	2,528,086	275,126	1,006,195	26	91,285	50,765	613,293	1,235,825	3,591,991
1898,	"	195	7,330	2,085,751	9,152,800	695,773	2,463	1,414,266	332,679	2,285,317	71	66,619	18,257	589,315	930,642	3,128,709

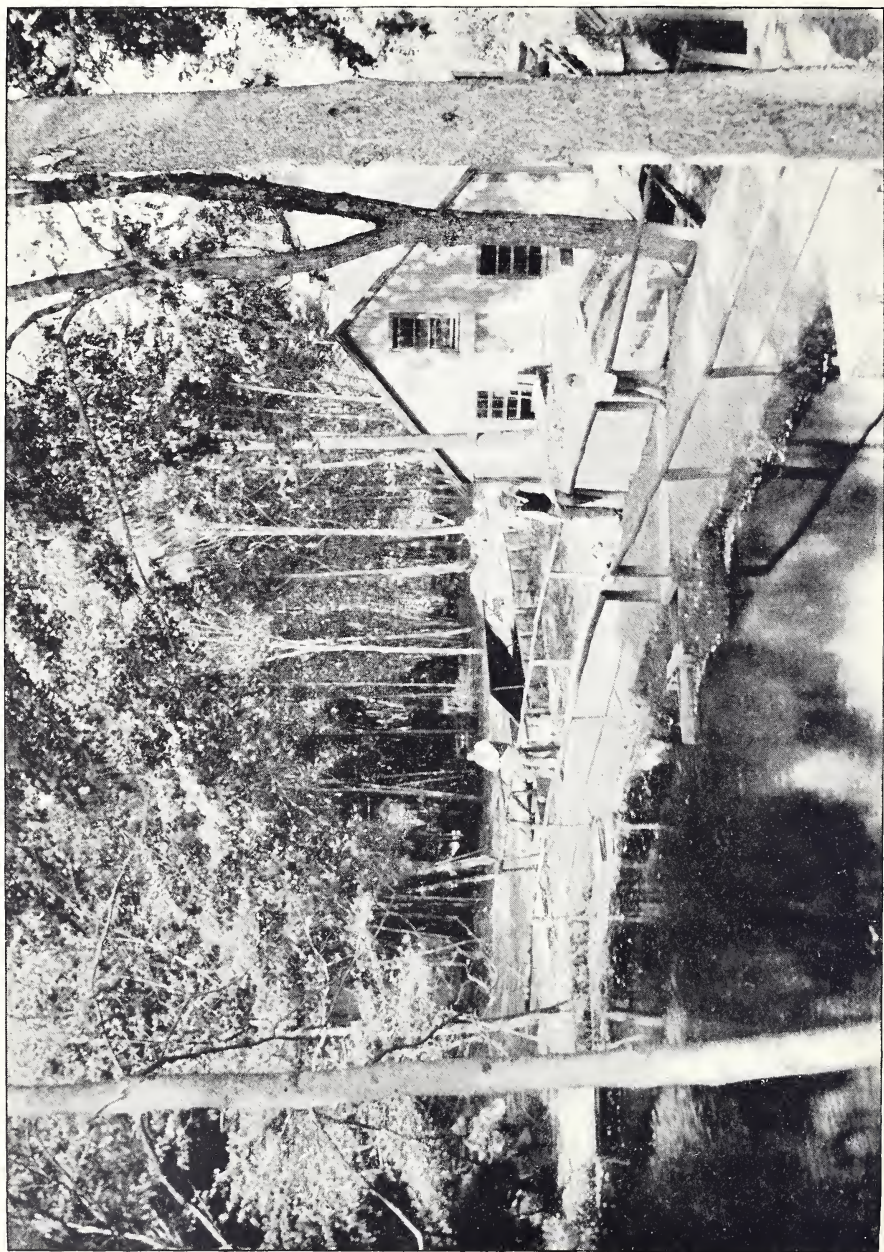
Increase of 1885 over 1884, Decrease of 1885 below 1884,	21	7,648	1,393,969	3,198,878	294,106	5,701	381,500	58,678	1,169,031	80	111,816	16,957	40,059	27,698	-
Increase of 1886 over 1885, Decrease of 1886 below 1885,	60	5,881	564,009	5,026,304	33,420	2,005	711,778	16,134	1,430,496	4	78,915	1,214	71,843	50,164	456,507
Increase of 1887 over 1886, Decrease of 1887 below 1886,	12	174	75,099	825,166	48,289	2,103	165,711	15,089	338,285	83	11,391	40,387	44,033	-	227,980
Increase of 1888 over 1887, Decrease of 1888 below 1887,	152	129,908	642,287	5,323,861	1,438,526	1,442	472,363	111,493	2,743,828	2,377	174,452	18,542	112,490	9,437	2,566,781
Increase of 1889 over 1888, Decrease of 1889 below 1888,	88	-	150,000	12,249,666	2,790,316	3,139	336,789	89,208	2,640,286	1,795	165,179	2,111	104,726	180,949	859,427
Increase of 1890 over 1889, Decrease of 1890 below 1889,	61	11,168	579,009	14,437,039	2,605,452	868	979,109	4,488	346,510	2,036	166,339	46,243	87,064	118,794	903,673
Increase of 1891 over 1890, Decrease of 1891 below 1890,	89	2,492	1,915,902	5,626,625	2,431,752	5,640	2,804,223	53,754	1,701,947	2,318	158,425	7,165	175,320	18,812	518,202
Increase of 1892 over 1891, Decrease of 1892 below 1891,	9	20,418	1,774,899	6,132,327	4,373,252	631	737,012	28,939	2,184,788	364	19,212	12,384	7,301	45,783	1,026,879
Increase of 1893 over 1892, Decrease of 1893 below 1892,	42	1,546	975,653	2,519,220	4,150,776	1,711	207,376	235,942	2,809,266	2,034	7,827	10,971	72,792	297,805	22,426
Increase of 1894 over 1893, Decrease of 1894 below 1893,	74	-	1,537,724	3,438,445	2,625,442	1,645	1,822,310	3,962	2,308,825	-	27,918	6,051	93,868	549,320	7,115,998
Increase of 1895 over 1894, Decrease of 1895 below 1894,	44	24,146	2,887,706	8,041,852	320,708	472	1,071,750	154,871	3,753,155	1,390	50,568	407,172	206,622	981,241	4,842,226
Increase of 1896 over 1895, Decrease of 1896 below 1895,	42	-	1,823,516	5,892,844	595,126	966	2,198,080	122,978	1,230,688	37	29,411	338,539	61,621	761,119	9,257,971
Increase of 1897 over 1896, Decrease of 1897 below 1896,	52	4,518	2,121,825	434,231	958,810	7,055	1,135,981	4,694	765,249	72	12,301	8,254	211,411	2,600,720	906,833
Increase of 1898 over 1897, Decrease of 1898 below 1897,	60	13,306	421,534	8,883,824	1,226,281	6,305	1,113,820	57,553	679,122	45	24,666	32,448	23,978	305,188	463,282



STATE HATCHERY, WINCHESTER.



SUPERINTENDENT'S DWELLING, SUTTON, MASS.



STATE HATCHERY, SUTTON, MASS.

REPORT OF THE COMMISSIONERS

ON

INLAND FISHERIES AND GAME

FOR THE

YEAR ENDING DECEMBER 31, 1899.

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Commonwealth of Massachusetts.

To His Excellency the Governor and Honorable Council.

The Commissioners on Inland Fisheries and Game respectfully submit their thirty-fourth annual report.

FISHWAYS.

The success of the new fishway at Lawrence made it desirable that some repairs should be made on the Lowell fishway. A request was accordingly made to the Locks and Canal Company to that end, and we are assured that our suggestions have been fully complied with; but owing to the extended drought during the past summer and fall, there has not been sufficient water to test it.

The fishway at Middleborough, connecting the Nemasket River with the large pond above what is known as Sherman's dam, is important as affecting the fisheries of Taunton River. Owing to the difficulty of determining the ownership of said dam and the disregard of orders from this Board, it became necessary to put the case in the hands of the Attorney-General, with the following result:—

In re Sherman's dam at Middleborough: On May 5, 1899, this office, acting under Statutes 1899, chapter 103, filed a petition to the superior court in behalf of the Commissioners on Inland Fisheries and Game *v.* Lizzie B. S. Wyman, asking for an order to repair and keep open the fishway over the Sherman dam at Middleborough. After a hearing before Mr. Chief Justice Mason, a decree was entered on May 26, 1899, ordering the respondent, on or before Aug. 1, 1899, to construct a new fishway over said dam, in accordance with definite specifications, to maintain the same in a condition suitable for the passage of migratory fish, and to keep the same open from April 1 to July 1 and from August 1 to October 1, in each year.

FRANKLIN T. HAMMOND,

Assistant Attorney-General.

FOOD FISH AND HATCHERIES.

All applications for stocking ponds, made in accordance with chapter 208, Acts of 1897, have been complied with. By an act of the Legislature, 1899, chapter 107, Mill Pond, Yarmouth, has been secured by the commission for the purpose of cultivation of food fish, especially white perch, for distribution.

While the season has been remarkable for its drought, it does not seem to have materially affected the trout streams. The catch has been good, and in many localities an increase has been reported. The open season for trout fishing should be shortened, and the taking of any trout less than six inches in length prohibited.

The report of the superintendent of hatcheries is herewith submitted, giving in detail the work in that department:—

MARION, Nov. 20, 1899.

Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In submitting my report as superintendent of hatcheries, I will say that during the year many needed improvements have been made at the Sutton and Hadley hatcheries. Early in the spring the pond at Sutton was drawn down, thoroughly cleaned out, and all of the old fish disposed of. Some were liberated in the river below the hatchery, and about one hundred of the largest were put into Lake Quinsigamond. We have also put into the same lake two hundred and twenty-five two-year-old rainbow trout, grown at Sutton. Our fish were carefully selected, and two thousand of the best two to four years old were saved for breeding stock, which have given us up to the present time four hundred thousand eggs, with prospects of about as many more. New ponds were put in early in the season for growing young fish, and we have on hand about sixteen thousand land-locked salmon, brown and brook trout fingerlings. A new house has been built, of sufficient capacity to supply all the ice necessary, and the old ice house has been moved back and is now used as a meat house. Quite a number of fruit trees have been set out about the place, and considerable work has been done in grading, seeding down and setting out flower beds, which has added very much to the looks of the grounds, and has had a very pleasing effect upon the many who have visited the place during the year.

Owing to an excess of water during heavy rains and freshets at Hadley, it has been necessary to strengthen the upper dam and put in another sluice way. Two new ponds have been built, and the spawning race has been carried further out into the pond. There is

considerable work that is needed to be done, but owing to lack of funds it has been necessary to economize at this station.

There have been put into the pond in the last two years about thirty-five hundred yearling trout, and unless the percentage of loss is larger than usual, we should get at least half a million of eggs. I would recommend that another year pens be built for holding at least half of our breeding fish. While I am convinced that trout can be grown cheaper and larger in deep ponds than otherwise, there is an uncertainty about the condition and number that can only be ascertained by drawing down the pond. On the other hand, where your fish are in pens, they can be seen at all times, and if disease appears, or the fish disappear, it is noticed at once, and the evil can be remedied.

The new hatchery built at Adams last year was finished in time to receive its allotment of two hundred thousand eggs. The spring supplying the house with water proved satisfactory in every respect, giving a large flow of even temperature, and free of sediment. One million eggs put on the trays at Winchester, Sutton, Hadley and Adams hatched with a small loss, and the fry were distributed in April and May. A list of the distributions will be found in the Appendix.

Respectfully submitted,

JOHN W. DELANO,
Superintendent.

CARP.

Soon after the introduction of carp into this country by the late Prof. Spencer F. Baird, then U. S. Commissioner of Fish and Fisheries, and before they were fairly established in their new home, there came a howl from one end of the country to the other, charging that they were worthless as food, and that they destroyed the spawn of other and more valuable fish. This came from people who were ignorant of the true character of this fish, and who had forgotten, if they ever knew, that Isaac Walton had termed the carp "the queen of the rivers." On the Great Lakes, where the fisheries were gradually growing less, the fishermen, true to their usual habit, laid the blame on the despised carp, instead of admitting that the decrease was due to overfishing. Some of the State commissions went so far as to recommend that steps should be taken to clear the waters of them,—a proposition about as feasible as to propose to clear a ten-acre marsh of mosquitos, for carp, once introduced into waters of any considerable area, are there to stay.

Ponds have been drawn down and apparently every carp removed, and in a few years they were found to be as plenty as ever.

Professor Baird was a man of great good sense, and took no decided action without first considering the result. He made himself familiar with the methods and results of carp culture in Europe, and of the millions of dollars there invested in this industry and the profit arising therefrom. We know from personal interview with him that he had no hesitation in introducing them into American waters. Years have gone by, and the good professor has passed from this life, but his work lives after him. Fully satisfied with the information obtained from him and others, we have always advocated the importance of carp culture as likely to yield more money value than the culture of any other variety of fish, and that the farmer who owns meadow land with a never-failing brook running through it could make a carp pond which would yield him a good profit.

Notwithstanding all the diverse criticisms, we believe that, as a means of increasing the native fish, it is desirable to stock many of our waters with carp. In support of this conclusion, we quote the following tables and extracts from the report of the Fish Commission of Illinois for 1898:—

Returns from twenty points on the Illinois River probably not over seventy-five per cent. for this river, and representing only about two hundred miles frontage out of nearly or quite one thousand miles frontage of rivers productive of this great food product.

1896.			
Carp, 3,678,000 pounds, net value,	.	.	\$99,059 50
Other fish, 3,574,811 pounds, net value,	.	.	108,527 72

1897.			
Carp, 5,489,900 pounds, net value,	.	.	\$164,699 75
Other fish, 4,213,398 pounds, net value,	.	.	114,783 07

Carp are accused of driving out all of the game fish and destroying the young of all other fish. The best argument to refute that theory is a plain statement of the conditions that exist this season (1898) in the Illinois River. Carp are more plentiful than ever, growing to immense size, and the increase in numbers wonderful, while there are more black bass and croppie than for many years before; and we can cite many instances in lakes along this river where very large hauls of carp have been made; one in particular aggregating thirty

thousand pounds, and yet that lake has furnished the best black bass fishing on the Illinois River. This instance is not an exception, but is repeated many times in greater or less degree along the whole length of the river.

It is significant that a great part of this large amount of carp finds a market in Philadelphia, New York and Boston, selling here at from eighteen to twenty-five cents a pound. It is safe to say that few rivers on the Atlantic slope, from Labrador to the Gulf, produce a larger revenue.

Owing to the lack of proper protection, the shad have been destroyed in our rivers so that there is not much of value left in them. In view of the results obtained in Illinois and elsewhere, the question of stocking our otherwise nearly barren rivers with carp is one demanding serious attention and consideration. By doing this, it is probable that the commercial or food-yielding possibilities of certain of our streams may be greatly enhanced, while a secondary benefit will be derived, namely, the young of the carp will furnish an abundant supply of food to any game fish that may be in the waters, and to that extent make it possible for them to maintain their abundance, and even to increase, as similar species have done elsewhere.

SHORE FISHERIES.

Weir and Net Fishing.—The weir and net fisheries have been much more profitable the past season than for several years. This was due largely, if not wholly, to an unusually large catch of mackerel. These fish were mostly of medium size, and the bulk of them were taken late in the season, when they were in the best possible condition, and when they brought remunerative prices, though the overcrowding of the market with fresh mackerel caused a temporary decline in values.

The increase in catch of this species over 1898, considered from the stand-point of numbers of fish alone, is about fifty per cent. If, however, consideration is given to the larger size of the mackerel taken in 1899, the difference is much greater, and doubtless the catch was more than double that of the previous year. The increase of value of the product over that of 1898 must be much larger than the difference in bulk

would indicate, owing to the better condition of the fish for food.

The most remarkable event of the season, and one of the most notable in the history of a species famed for its erratic habits, was the sudden appearance in Cape Cod Bay, at the close of October and the beginning of November, of a large body of mackerel, probably a fraction of a much greater army of fish which passed east of Cape Cod in its autumn migration southwardly. These fish were mostly twelve to twelve and one-half inches long (weighing about nine-tenths of a pound each, as taken from the water), and, as already indicated, were in prime condition for food.

From reports submitted to the commission, it appears that the mackerel of this run were first taken at Barnstable on October 30. Some of the fishermen were unprepared to take advantage of the appearance of fish, for they had taken up their weirs, and the gill netters in some cases did not set their nets until they heard of the catch elsewhere, and the most favorable time for fishing had passed. This was the case at Dennis.

The fish, following the curve of the Cape, appeared at Truro and vicinity on the east side of the bay on October 31. No mackerel were taken on November 1, but on the four or five succeeding days large catches were made in the weirs and gill nets, after which the fish disappeared. From all the data available, it appears that the total catch of the shore fishermen in Cape Cod Bay from October 30 to November 6, inclusive, closely approximated six thousand barrels of mackerel. This result may be considered extraordinary and a great blessing,* in view of the general scarcity of mackerel throughout the season, and the comparatively limited catch of the mackerel fleet. It emphasizes the fact that there was a vast body of this species somewhere in the ocean, apparently not met with by the fishermen, and therefore the product of the summer fishery failed to indicate the abundance that actually existed, but was unsuspected until revealed in the fall migration. Had there been a considerable fleet of mackerel schooners at Cape Cod,

* We are informed that one weir at North Truro stocked about six thousand dollars during this run of mackerel, the members of its crew sharing about five hundred dollars each.

as was often the case at this season in former years, the total catch would doubtless have been very large, and might easily have exceeded the entire product of the fishery during the previous months of the season. But the fishery had been practically abandoned by the vessels, which had mostly entered other branches of fishing or were hauled up, and consequently were unprepared to take advantage of the presence of mackerel on the fishing grounds.

The occurrence of late mackerel schools was, however, no more than a repetition of history. In the long period of scarcity of mackerel, between 1831 and 1850, it happened on several occasions that a summer season of poor fishing was followed in late autumn by the appearance at or near Cape Cod of an immense body of fish, from whence no one knew, and the catch of a few days added materially to the season's earnings. This was notably the case in 1847 and 1848, just preceding the return of the mackerel in comparative abundance, and it is to be hoped that the occurrence of mackerel late in the fall of 1899 may likewise be the precursor of greater plentifulness of the species in the immediate future.

The scarcity of the bluefish in the coast waters of the State for the past few years, and especially in the season of 1899, illustrates the unreliability of the species, which, to a greater or less extent, is characteristic of the mackerel family. Its partial absence may account for the unusual abundance of other sea fishes, the squeteague, for example, of which there was a large catch the past season, as has also been the case for the past six years.

The herring catch of 1899 shows a gratifying increase, exceeding that of the previous year by approximately fifty per cent. The importance of this additional catch is derived chiefly from the fact that a more bountiful supply of bait, taken in our own waters, is thus available to the deep-sea fishing vessels of the State.

The catch of shad has been larger in the season covered by this report than at any time since 1888, and about six or seven times larger than the previous year.

The catch of tautog was more than double that of 1898. There seems to be no marked variation in the yield of other species coming under this head, except the menhaden and

squid. The catch of the former was exceptionally small, being less than one-seventh that of 1898, while the yield of squid was almost double that of the previous year.

LOBSTERS.

The results of the artificial propagation of the lobster, carried on by the United States Fish Commission at Woods Hole and Gloucester, in 1899, are presented in the following reports from the superintendents at those stations, who have, with the approval of the commissioner, Hon. George M. Bowers, furnished us these data :—

U. S. COMMISSION OF FISH AND FISHERIES,
WOODS HOLE, MASS., NOV. 15, 1899.

Capt. J. W. COLLINS, *Chairman Board of Commissioners on Fisheries and Game, 610 Cambridge Street, Allston, Mass.*

DEAR SIR:—In accordance with your request of the 11th instant, I beg to submit the following report of the work done in the propagation of lobsters at this station during the past season.

The season opened about the middle of April, the first eggs being taken April 20, and ended June 30, when the last eggs were received from Massachusetts waters. The territory covered included Vineyard Sound between Woods Hole and Gay Head, and so much of Buzzard's Bay as lies between Cuttyhunk Island, New Bedford and North Falmouth. Small collections were also made on the north side of Cape Cod, from Plymouth and Scituate. In all, 1,156 egg-bearing lobsters were received from the waters of this State. These lobsters yielded 14,549,000 eggs, and these in turn produced 13,113,000 fry. The fry were given a wide range of distribution, plants being made at Scituate, Plymouth, Manomet, Wellfleet and Provincetown on the north side of Cape Cod, and at numerous points in Vineyard Sound and Buzzards Bay.

Besides the above, collections were made from Rhode Island and Connecticut waters, the total number of eggs handled at the station being 44,458,000, and the total number of fry hatched being 39,881,000.

Yours very truly,

E. F. LOCKE,
Superintendent.

U. S. COMMISSION OF FISH AND FISHERIES,
GLOUCESTER, MASS., NOV. 17, 1899.

Hon. J. W. COLLINS, *Chairman Board of Commissioners on Fish and Game,*
Allston, Mass.

DEAR SIR:—I beg to submit a summary of the lobster-hatching operations at Gloucester, Mass., station during the season of 1899.

Active work began the latter part of April and continued to July 16. Collections of egg-bearing lobsters were made at various points along the Massachusetts coast from Rockport to Cohasset, and also from Portsmouth, N. H., to Eastport, Me. During the season we received from Massachusetts sources 2,353 egg lobsters, which yielded 31,184,000 eggs. From these were hatched 28,488,000 fry, all of which were deposited in the waters of this State at various points along the coast from Lanesville to Boston. In addition to these, we also planted in these waters 5,197,000 lobster fry, obtained from eggs secured in New Hampshire and Maine, making the total fry distributed in Massachusetts waters 33,685,000.

The total receipts for the season from all sources amounted to 6,329 egg lobsters, which yielded 77,390,000 eggs, from which were hatched and planted 70,610,000 fry.

Yours respectfully,

C. G. CORLISS,
Superintendent.

The magnitude of these figures is impressive; they demonstrate the extensive scale upon which this work is prosecuted, and it is evident that the planting of such immense numbers of fry in the coast waters of the State should produce satisfactory results, if the chances of life in its immature stages are as good with the lobster as with many fishes that have been objects of fish culture. Just how long it will take to demonstrate what can be accomplished toward increasing the species by artificial means remains to be seen.

In the mean time, we are confronted by the fact that the decrease in the abundance of the lobster is persistent and indisputable. The returns this year indicate a shrinkage in the catch of about five per cent. since the previous year. In the report for 1898 it was pointed out that "during the last eight years the lobster fisheries have decreased over fifty per cent.," and it is increasingly evident that its protection is a matter which deserves careful and considerate attention on the part of those interested in the continuance of this valuable crustacean in our State waters.

It may be reiterated that the laws now in force are inadequate to secure the results aimed at in their enactment, and so generally desired. Despite all that can be done, it is a matter of almost common knowledge that they are flagrantly violated by the fishermen, many of whom persistently ignore the laws, even after once convicted of transgression, their sole desire being for present gains, regardless of future results. Unless we are to see the practical extermination of the lobster in State waters, and the extinction of an industry that supports many people and yields a desirable and highly prized article of food, it is necessary that some new legislation shall be enacted which will be more effective and better adapted to meet present conditions of fishery and trade than present laws. It having been demonstrated that the present laws do not protect, for the simple reason that with the means available their satisfactory enforcement is impracticable, the only apparent remedy seems to be in the enactment of a new law, the best the wisdom of the Legislature can devise, and providing for its proper enforcement. This is desired by the dealers, and by all who look beyond the present moment and have an interest in preserving a species which is the basis of a valuable industry.

This was emphasized at a hearing of lobster dealers, held by the commission at the State House on November 27, at which the leading wholesale houses of the State were represented. While there was a diversity of opinion as to the best means to secure desired results, and no definite proposition was put forward as an expression of the assembled dealers, beyond the desire that the commissioners should draft a measure to meet the necessities of the case, it was unanimously urged that some new and improved legislation is required to protect the lobster from continual decimation and ultimate extermination. It was also strongly advocated that any new legislation should aim to enable reputable dealers to carry on business without the liability of unconsciously and unintentionally becoming transgressors of law, through the shrinkage of lobsters, by boiling or otherwise, whereby those handling goods of full legal length, when alive and under normal conditions, might be arrested and fined for having short lobsters, if the latter are measured after being cooked or even after being iced for a number of hours.

It is pertinent to state, in this connection, that the commission has recently investigated this question of shrinkage caused by boiling. Seventeen lobsters, each ten and one-half inches long, were carefully measured immediately after being taken from the water, and again after having been boiled. One of these specimens showed no appreciable change in length; the others had shrunk from one-eighth to one-half inch, the average being approximately one-quarter inch. Inasmuch as the requirements of trade make it obligatory for the dealers to boil a large percentage of the lobsters handled, and in summer to ship many in ice, and as they can scarcely refuse to buy live lobsters of full legal length, it would seem, from the facts so definitely ascertained by the commission, that they are unnecessarily exposed to peril which even-handed justice demands they should be relieved from.

The attention of the commission was also invited to the fact that, because of lack of uniformity of lobster laws in adjoining States, it has been, and still is, customary for lobsters of less than legal length in this Commonwealth to be shipped over our lines of transportation, en route from the British maritime Provinces to New York or Rhode Island. Many of those going to the latter State are cooked, mutilated and reshipped to supply the trade demand in Massachusetts. This particular phase of the trade is carried on chiefly, if not wholly, during January, February and March, a season when there is comparatively little lobster fishing in this State; and dealers naturally object to the profits of commerce going elsewhere, while they are debarred from sharing in them, even when the products themselves are ultimately consumed in this Commonwealth.

It will, however, be apparent that some difficulty may be met with in framing a law which will meet all requirements of trade and at the same time prove efficient in protecting the lobster. Still, such a measure may be possible, and the importance of the objects to be attained demand that an effort shall be made to improve present conditions.

Whatever diversity of opinion may have prevailed in other respects, and however difficult it may seem to meet all requirements, there was practical unanimity of feeling on the part of the dealers assembled that a feature of any measure should be a provision to license the lobster fishermen, the license to be revoked for a year in case of violation of law. This is sub-

stantially what the commission has recommended in previous reports; and the fact that it is endorsed by those of long experience in the lobster trade is at least gratifying evidence that it may safely be considered in the preparation of any new law for protecting the lobster and preserving the industry it supports.

SEA FISHERIES.

The fishing industry of the State has been more remunerative during 1899 than for a series of years. This is due to more prosperous conditions throughout the country, resulting in an increased demand for fish food and enhanced prices.

The demand for salt fish has been good, possibly influenced to some degree by the needs of the army and the requirements of trade in our recently acquired insular possessions. With the exception of the mackerel, the food species chiefly sought by Massachusetts fishermen have been abundant, the cod particularly so, and the financial results have been correspondingly satisfactory.

The deep-sea fisheries of New England are now largely controlled by Massachusetts, and for this reason it is a matter of much moment that the fishing interests of the State should improve every opportunity to maintain ascendancy in this branch of maritime industry. Therefore, it seems timely to invite attention to the fact that the United States annually imports from Europe more than a million dollars' worth of sea herring, in a salted condition, while fish of the same species and equally as good, if cured in the same manner, are abundant in waters frequented by Massachusetts vessels, and are easily available to our fishermen. It is true that, while high prices are paid for European herring, those taken by our fishermen usually sell for much less money; and our fishermen have become accustomed to look upon the herring as a cheap fish and one deserving of little care. The bulk of the herring put upon the market by American fishermen are those taken near the shore, usually in harbors or bays, in the spawning season, when the fish are in comparatively poor condition for food. This, together with the fact that improved methods of cure have been neglected, has given the American herring a low reputation; consequently it brings a low price, generally about half as much as the European herring sells for.

Fat herring, as good as the sea affords, can be caught in quantities during the summer, in the deep waters commonly visited by our fishermen, or they can be taken in certain harbors of Labrador or Newfoundland, where our vessels have a right to fish. In view of all this, it seems desirable that the fishing interests of this Commonwealth should make an intelligent and determined effort to avail themselves of the opportunity which lies before them of supplying the American market with herring, and of building up a reputation for their products that will insure their favorable reception by consumers. The acquirement of a million-dollar market—and this seems practicable, if proper means are used—is a matter of too great moment to our fishery industries to be ignored or neglected, and no effort should be spared to secure it.

The deep-sea market fishery is a branch of industry of growing importance, and one largely controlled by this State, Boston and Gloucester being without rivals as markets for fresh ocean fish. It is, therefore, pertinent to suggest that, while important improvements have been made in sailing vessels in recent years, whereby greater safety and speed have been attained, much yet remains to be accomplished before satisfactory conditions are reached, which will yield the greatest profit to fishermen and dealers and enhance the value of the products to the consumer.

It is not practicable in this report to elaborate on this subject. We will only venture to invite attention to the marvelous development of the steam market-fishing fleet of Great Britain in recent years; the advantage which a steam-driven vessel has over a sailing vessel in taking her catch to market, and in fishing in strong winds when men cannot venture out in a dory; and to point to the fact, which seems indisputable, that the success of the deep-sea market fishery must depend upon the effort made to have its products landed in the best possible condition, so that they will compare favorably with fish caught along the coast, in the great bays and estuaries, or on the Great Lakes, where they can be shipped, on swift steamers or express trains, shortly after they are taken from the water.

To attain complete success in this direction, it seems necessary to employ steam vessels. Much, however, can be accom-

plished by adopting a different system of caring for the fish and of buying them from the vessels. At present the fish are packed on board the vessels in pens, five or six feet deep, and in winter without ice. The underneath fish are necessarily jammed, and their appearance, as well as their food qualities, are very much injured. But they are bought by the cargo, without inspection of any sort; consequently the painstaking and careful fishermen receive no more pay nor consideration than those who are negligent. Thus quantity and not quality is the highest consideration; the market is liable to be flooded at times with inferior goods; the supply fluctuates, and the standard of excellence is more or less variable. This fails to inspire that confidence on the part of consumers that ought to exist, with the result that the demand is more limited than it should be, and fishermen and dealers alike are deprived of the full fruits of their labors.

We venture to suggest the advisability of dividing the fish pens with horizontal shelves, so that the fish will keep better and be more uniform in appearance when landed. It is also highly important that some system shall be adopted whereby the price of fish, as received from the vessel, shall depend upon quality, and that thereby a premium shall be given to those who are careful and land the best product. This can scarcely be carried too far, when it is a recognized fact that every well-preserved and delicately flavored fish creates a demand for others, while inferior goods have a most harmful effect. This is so true, and there are so many who are willing to pay comparatively high prices for choice articles of fish food, that it may even be found expedient to employ welled vessels for bringing live fish to our markets.

Much more might be said in a suggestive way, in relation to our sea fisheries, of interest alike to the producer and the consumer; but further elaboration of the subject is not practicable at this time. Suffice it to say that when the increase in the steam fishing fleet of Grimsby, England, for the single year of 1898, reached a higher total in value than the entire fishing fleet of Essex County, it is evident that steam fishing has passed the experimental stage, and that the time has arrived for a serious consideration of its possibilities in the prose-

cution of the deep-sea market fisheries from this Commonwealth.

At the hearing on November 23, mention was made of a proposed attempt to secure legislation in Congress at the coming session for the prohibition of the vessel mackerel fishery prior to July 1 of each year, for a term of twenty years. The action suggested is along practically the same lines as the law enacted by Congress in February, 1887, which restricted the annual fishing until June 1, and covered a period of only five years, ostensibly for the protection of the mackerel. The subject is an interesting one from a commercial point of view, — one in which Massachusetts has a large interest, — and it should receive the considerate attention of those most concerned in the proposed action.

GAME.

The alarming depletion of game all over the State led us to call a meeting of all fish and game clubs and sportsmen in the Commonwealth, to consider some plan of protection and possible increase. All clubs, so far as we know, were notified, and responded by delegates or letter; and the meeting, held at the State House November 23, was fairly well attended. This is the first convention of sportsmen held in this State, but we trust that it may be repeated annually.

As might have been expected, the discussion was somewhat diffuse; but the best of feeling prevailed, and the conclusions were very satisfactory to the commission. It was the voice of the meeting (with one dissenting vote) that the sale of game be prohibited and the open season for all game should be from October 1 to December 1. The commissioners heartily agree with this decision, and will do all they can to sustain it; but the clubs and sportsmen should remember that the action of the Legislature is understood to be an expression of public sentiment, voicing the necessities of the people. It is not enough to *favor* better laws and larger appropriations; Senators and Representatives should *know what is desired by their constituents*.

However mortifying it may be to know that Massachusetts, the first State to take action for the protection and propagation of fish and game, has fallen behind other States, we do not

acknowledge the justice of the charge that this commission is responsible for it. We have, as our reports will show, constantly urged the importance of better laws and adequate means to enforce them. We are powerless to do anything unless supported by public opinion. While many of the ideas and inventions originated and promulgated by this Board have been successfully carried out in other States, they have sometimes, through no fault of the Board, failed to materialize here.

We recognize the fact that Massachusetts is to a large extent a commercial and manufacturing State; still, she has within her borders ample grounds, with all necessary environments, for the maintenance of an abundance of game and fish; and it is a serious matter, and one indicating a lack of proper consideration of the needs of our citizens, that the people of this State annually spend many thousands of dollars for recreation elsewhere, which might be provided in this State by judicious legislation, with the result that a large revenue would be retained within our own borders.

We append the following letters, as showing the general sentiment, received from all parts of the State:—

GREAT BARRINGTON, MASS., NOV. 15, 1899.

Chairman COLLINS.

DEAR SIR:—While we may not appear the 23d, we wish to express our great concern for the welfare of game and fish in the Commonwealth. With reference to western Massachusetts, it is plain to us that the season for trout fishing should be limited to May and June, and that no game birds should be shot or otherwise killed except during the months of October and November; and we think that legislators from this district should act to this end.

We shall winter about fifty pheasants, intending to turn out say one-half in the spring. It is known that there are a few broods of woods-born pheasants within twenty miles of here.

Massachusetts is in the rear, when she should be in the advance, in this good work, and we expect you will wake up the whole State.

Respectfully yours,

CALEB TICKNOR.

AMESBURY, MASS., NOV. 24, 1899.

Hon. A. E. BRACKETT.

DEAR SIR:—I read in to-day's "Globe" the proposed bill prohibiting the sale of game. Allow me to say that I believe it a move in

the right direction, could it become a law. I know parties who gun for market every pleasant day, and who have shot in this section nearly one hundred and fifty grouse. I think I am safe in saying that if there was no sale for this game, eighty per cent. would not have been killed.

I may be wrong; but my conviction is that, if we can do away with market hunting, the next generation may be able to see grouse and quail in their native State, and not have to depend on mounted specimens in the natural history rooms.

This law would destroy the occupation of the snarer also; and I am ready to contribute to push such a bill, and also to put in some solid work with the Representative from this district.

Yours respectfully,

H. F. CHASE.

BOSTON, MASS., NOV. 25, 1899.

TO E. A. BRACKETT, *Secretary Commissioners on Inland Fisheries and Game.*

DEAR SIR:—One year ago all reports tended to show that our game birds were fast becoming unusually scarce. The season now so nearly at an end confirms those views most decidedly, and this condition seems very prevalent throughout New England.

The worst enemy to our game is, unquestionably, the *market shooter*. Next to him comes the *dealer in game*; and our most intelligent sportsmen are fast coming to the conclusion that radical measures must be resorted to, and that no time should be lost in instituting these.

It would be far better to entirely prohibit the sale of all game killed in this State for a term of years, rather than to find our covers totally deserted, as they otherwise soon will be.

Partridges, quail and woodcock will soon become plentiful again if they have a fair chance; but of late years there has been a *war of extermination* waged against them.

As a deputy commissioner, I have carefully watched our market, and I believe that very few violations of fishery or game laws have occurred. My chief work, however, has been in the capacity of an executive officer of the Rod and Gun Club of Massachusetts. This organization has been in dead earnest in its pursuit of offenders; and we have constantly in the field two live men, these being also deputy commissioners of fisheries and game.

As fast as our means allow, we intend to employ other officers. I trust that all true sportsmen will not hesitate to use their utmost influence to secure much needed legislation in the interest of our game.

Very truly yours,

JOHN FOTTLER, Jr.

The great and increasing demand made from all parts of the State for the better enforcement of the laws for the protection of fish and game renders it necessary, if the work is to be carried on, that a larger appropriation should be made for that purpose. In addition to deputies who serve without pay, there should be a corps of paid deputies, who can be sent to any part of the State when required.

WINCHENDON, MASS., Dec. 4, 1899.

Fish and Game Commissioners, Boston, Mass.

GENTLEMEN:—It was with great pleasure that I read of the proposed bill which was the result of the conference at the State House on November 23. I think that the shortening of the season will be a great help in preserving the remnant of our partridge, which is *the* game bird of this region. Last year a great number were shot while budding during December; and as far as September shooting goes, I think that each sportsman would be very glad to let the birds alone if the rest would. There is no really good shooting until early October. There are a number of so-called sportsmen hereabout who are very much opposed to the prohibition of the sale of game, because it shuts them off from their market shooting; but there is a stronger element who believe that this is the true remedy for the present bad conditions, and who are so anxious to see the bill become a law that they are going to appeal to our representative-elect to give his co-operation.

I hope that the time will come when the game laws can be enforced, and it is only by the strong co-operation of the sportsmen that they can be more than a “dead letter.” Have we such a thing as a game warden in this vicinity? We have never seen or heard of one.

Yours respectfully,

EBEN B. ELLIS.

MONGOLIAN PHEASANTS.

After the passage of the act of 1895, protecting pheasants, there was a considerable delay in obtaining a pure stock for breeding, and a still further delay in experimenting with them, in order to acquire the necessary knowledge and experience to successfully rear the young birds.

It was thought best to interest people throughout the State by sending pheasants to reliable parties to breed and distribute in their respective localities; but unfortunately this plan did



MALE MONGOLIAN PHEASANT.

not meet with success, as in a majority of cases they either lost their birds or failed to rear any. For this the commissioners are in no way responsible, for they gave all the aid and information possible. Could the parties have given more care and attention to the work, the result might have been different. Mongolian pheasants are beautiful birds, and some who received them evidently considered their attractive appearance of more importance than their increase.

For the past two years it has seemed to us, in view of past experience, better to send the birds in the spring or early fall to be liberated at once, or in the fall to parties willing to keep them through the winter and set them free in the spring. We are sorry to say that this agreement has not always been kept. Probably a still better way would be for the commission to personally inspect and select suitable localities, and put the birds out in colonies, from which the young birds would scatter and select desirable homes for themselves. In this way there would be no difficulty in stocking the State, provided they were not molested by lawless hunters. The State of Oregon was stocked from birds liberated on one estate.

Pheasants, like the quail, inhabit the more open ground during spring, summer and fall, and seek shelter in the thick pine woods in winter. Their native habitat is a country where the winters are more severe than in this State, and they will withstand the cold.

Two important questions had to be considered in introducing pheasants. First, would they find sufficient food to tide them through the winter. It was not known whether they would "bud," like the grouse. This question is now settled. Last winter was severe, as the snow came early and lasted long, but not a pheasant was known to have perished from cold or lack of food. Some of the liberated birds have been seen in hen yards, apparently seeking food; but this is due to the fact that they have been accustomed to be fed, and to their disposition to flock together in winter. The second question was, Will hunters let them alone until the State is well stocked? The artificially reared bird is half tame, and would easily fall a prey to the unprincipled gunner; and we regret to say that many of them have already been killed, six or eight

persons having been convicted and fined; and we know that these cases represent only a small part of the number destroyed by lawless hunters, where sufficient evidence to convict could not be obtained. It is unnecessary to say that this wanton destruction has materially affected the success of our work. Nevertheless, we are able to present very encouraging reports, such as has never been possible in the introduction of any other game bird. There have been but few liberated in Winchester from the State aviary, yet this and the surrounding towns are becoming fairly well stocked. Scarcely a week passes without a report of pheasants being seen. On one estate, within two miles of the aviary, the owner reports that not less than seven or eight broods have been seen this season, and surely not less than fifty birds reared.

From the testimony received, we submit the following as giving a fair illustration of the whole. To print all would only be cumulative evidence, not necessary to give an understanding of what has been done:—

WINCHESTER, MASS.

In reply to your inquiry concerning pheasants which I have seen at a distance from the Fells. During the last of September, while playing golf on the links near Horn Pond, I walked within one hundred feet of a flock of about twenty. They seemed to be a little larger than quails. A few days later, while driving from North Woburn to Wilmington, Mrs. Houghton and I saw a flock this side of the chemical works. They seemed about the same size, but there were more of them. Several times last winter I saw some about the centre of Winchester and about the parkway.

Very truly yours,

HENRY L. HOUGHTON.

NORTH EASTON, MASS., Oct. 24, 1899.

As you know, I have liberated not more than from twenty to thirty hens; have heard within the last six months of eight or ten broods. How authentic all these accounts are I cannot say, but I do know of four different broods of young birds hatched this summer. I should say, on the whole, that what I have liberated had done very well.

Yours truly,

HOBART AMES.

MILFORD, MASS.

It is a pleasure to me to report that the pheasants have done finely about here this summer, and I do not think any one has molested them. There were three broods raised within a mile of my home, one of nine, another of six, and the third is said to contain a dozen. Old birds have been seen in adjoining towns. No doubt there have been other broods that I do not know of.

W. N. PRENTISS.

MANCHESTER, MASS.

GENTLEMEN : — We have raised sixty-two pheasants from six hens and two cocks. I keep, for breeding, twenty hens and ten cocks ; and the rest we have liberated this fall, and they stay in our woods. The one pair which I liberated last spring bred and raised three, — all hens.

HERMANN THIEMANN,
Foreman Summer Residence of
U. S. Senator McMillan of Michigan.

FITCHBURG, MASS., Nov. 1, 1899.

MR. E. A. BRACKETT, *Commissioner on Inland Fisheries and Game for Massachusetts.*

DEAR SIR : — As you already know from our yearly reports what we have accomplished in the past few years in propagating and releasing Mongolian pheasants in this vicinity, I will not review, except to state that up to Jan. 1, 1899, we had reared and released sufficient birds to stock our covers if they proved hardy enough to stand our severe winters and would propagate in a wild state as they ought. The winter of 1898–99 was very severe in this vicinity, — in fact, the oldest inhabitant could hardly remember its equal. Snow came in abundance the first of December and remained until spring.

The writer took all possible pains to ascertain where and how the pheasants wintered, and found that almost invariably they made their homes in the thick clumps of white pines that abound in this section, which afford them ample protection from the cold and storms. Their food consisted of such weed seeds as were not covered by the snow, buds on low bushes, and when other food failed they would take to the trees and bud similarly to our ruffed grouse or partridge, but they would not bud in the trees from choice as readily as the grouse. We released our birds last season from July to September, much earlier in the summer than in the two previous years ; and thus they were liberated when insect life was at its height, and they could

procure an abundance of food anywhere. In this way, as they grew up amid their new surroundings, they would locate much better.

One very nice thing about these birds is that they do not flock, as do the pinnated grouse or prairie chicken, but distribute themselves very nicely. We know of coveys in eight of the surrounding towns. Of course they settle more thickly in some kinds of covers, and we know of one section where, in about two miles of territory, north and south, there are about ten coveys, and doubtless there are many more that we do not know of. We know of chicks having been seen in all of the surrounding towns, and from early spring up to the present time reports have been continually coming to me that these birds have been seen all around us.

We did not propagate and release this season, but let the Worcester sportsmen have our breeding stock and aviaries, Mr. Foster also taking care of them. Just how many they have raised I am unable to state, but am told that they have been very successful. Doubtless foxes, skunks, etc., have destroyed some of these birds, as they do our grouse, and perhaps some have been shot; but we think them amply able to take care of themselves.

We hope that a bill may be passed this coming winter, extending the close time. We think by so doing they would become thoroughly established all over the State. A gentleman told me to-day that he saw thirty-two of these birds in one day. If they increase as well for the next year our covers will be nicely stocked with them, and this fine game bird will be, like the poor, "always with us."

IRVING O. CONVERSE,

Secretary Fitchburg Rifle and Gun Club.

ASHBY, MASS.

DEAR SIR: — I receive reports from various parts of the town, from time to time, that old pheasants have been seen. Only two broods of young have been reported; but it must be remembered that most of the birds I have raised have been liberated in other places, where they are reported to have bred to the satisfaction of the parties liberating them. Two hundred young birds is the result of my efforts this season. One hundred and fifty of these were contracted for by the Worcester County Game Protective Association, a part of which have been liberated, and the remainder will be kept to be liberated in the spring.

Yours truly,

H. R. FOSTER.

We recommend an amendment to section 2, chapter 91, Public Statutes; that the time of a closed season for pheasants

be extended; a change in the laws for the protection of fish and game, and that some change be made in the laws for the protection of lobsters; also a larger appropriation for the enforcement of laws.

Owing to a large and increasing business, demanding his whole time, Mr. Young, who has served for ten years on this Board, felt compelled to decline a renomination. His unusual executive ability, his broad and generous bearing and his commanding personality made him at all times a prominent and efficient member of the Board. In his retirement, the State loses his valuable services and his colleagues an association which will be long and pleasantly remembered.

JOSEPH W. COLLINS, *Chairman.*

EDWARD A. BRACKETT, *Secretary.*

ELISHA D. BUFFINGTON.

J. W. DELANO, *Superintendent of Hatcheries.*

APPENDIX.

[A.]

LIST OF FISH COMMISSIONERS.

U. S. COMMISSION OF FISH AND FISHERIES, WASHINGTON, D. C.

George M. Bowers, Commissioner.

Irving H. Dunlap, Chief Clerk.

W. de C. Ravenal, Assistant in charge of Division of Fish Culture.

Dr. Hugh M. Smith, Assistant in charge of Division of Inquiry respecting Food Fishes.

Charles H. Townsend, Assistant in charge of Division of Statistics and Methods of Fisheries.

ARKANSAS.

H. H. Rottaken, . . . Little Rock.

W. B. Worthen, . . . Little Rock.

CALIFORNIA.

Alex. T. Vogelsang, President, . . . San Francisco.

C. B. Gould, . . . Oakland.

H. W. Keller, . . . Santa Monica.

John P. Babcock, Chief Deputy.

Address, California Fish Commission, 78 Flood Building, San Francisco, Cal.

COLORADO.

Forest, Game and Fish.

T. H. Johnson, . . . Denver.

CONNECTICUT.

Geo T. Mathewson, President, . . . Thompsonville.

Alden Solmans, . . . South Norwalk.

James A. Bill, Treasurer, . . . Lyme (Bill Hill P.O.).

DELAWARE.

J. Stanley Short, . . . Milford.

Dr. E. B. Shortlidge, Supt. of Hatcheries, . . . Wilmington.

FLORIDA.

John Y. Detwiler, President, . . . New Smyrna.

John J. Ruge, Secretary, . . . Apalachicola.

GEORGIA.

A. T. Dallis, La Grange.

ILLINOIS.

N. A. Cohen, President, Quincy.

S. P. Bartlett, Secretary and Superintendent, . . . Urbana.

A. Lenke, Treasurer, Chicago.

H. W. Loveday, Game Commissioner, . . . Chicago.

INDIANA.

Z. T. Sweeney, Columbus.

IOWA.

Geo. E. Delevan, Estherville.

KANSAS.

J. W. Shultz, Wichita.

MAINE.

L. T. Carlton, Augusta.

Henry O. Stanley, Dixfield.

Charles E. Oak, Caribou.

A. R. Nickerson, Sea and Shore Fisheries, . . . Boothbay Harbor.

MARYLAND.

John E. Stirling, eastern shore, Crisfield.

A. Fred'k George, western shore, Swanton.

Robert H. Gilbert, Game Warden, Baltimore.

MASSACHUSETTS.

Joseph W. Collins, Chairman, Boston.

Edward A. Brackett, Secretary, Winchester.

Elisha D. Buffington, Worcester.

MICHIGAN.

H. W. Davis, President, Grand Rapids.

Geo. D. Mussey, Secretary, Detroit.

Herschel Whittaker, Detroit.

F. B. Dickerson, Detroit.

Albert Ives, Jr., Detroit.

Seymour Bower, Superintendent, Detroit.

Office, 78 Moffett Building, Detroit.

MINNESOTA.

A. T. Williams, President,	. . . . .	Minneapolis.
Jacob Danz, Second Vice-President,	. . . . .	St. Paul.
W. W. Ward, Secretary,	. . . . .	Fairmont.
A. L. Cramb, Treasurer,	. . . . .	St. Cloud.
S. J. Donnelly, Attorney,	. . . . .	St. Paul.
John Beutner, Executive Agent,	. . . . .	Proctor Knott.
W. H. Morgan, Superintendent of Fisheries,	. . . . .	St. Paul.

MISSOURI.

Samuel T. Rathell, Chairman,	. . . . .	St. Louis.
Frank Yennewine, Secretary and Treasurer,	. . . . .	St. Joseph.
John T. Crisp,	. . . . .	Independence.
Wm. A. Rothwell,	. . . . .	Moberly.
P. L. Hurt,	. . . . .	Booneville.
A. J. D. Burford, State Game and Fish Warden,	. . . . .	Burfordsville.
200 Deputy Game and Fish Wardens,		

NEBRASKA.

Robert S. Oberfelder, President,	. . . . .	Sidney.
D. W. Barnes,	. . . . .	Valparaiso.
W. L. May,	. . . . .	Omaha.

NEW HAMPSHIRE.

Nathaniel Wentworth,	. . . . .	Hudson Center.
W. T. Shurtleff,	. . . . .	Lancaster.
F. L. Hughes,	. . . . .	Ashland.

NEW JERSEY.

Fish and Game.

Howard P. Frothingham, President,	. . . . .	Mt. Arlington.
Wm. A. Halsey,	. . . . .	Newark.
Benj. P. Morris,	. . . . .	Long Branch.
J. Frank Budd,	. . . . .	Burlington City.

NEW YORK.

Fish, Game and Forest.

Barnet H. Davis, President,	. . . . .	Palmyra.
Hendrick S. Holden,	. . . . .	Syracuse.
Wm. R. Reed,	. . . . .	Potsdam.
Charles H. Babcock,	. . . . .	Rochester.
Edward Thompson,	. . . . .	Northport, L. I.
Charles A. Taylor, Secretary,	. . . . .	Albany.

OHIO.

George Falloon, President,	.	.	.	.	.	Athens.
L. H. Reutinger, Secretary and Chief Warden,	.	.	.	.	.	Athens.
Albert Brewer,	.	.	.	.	.	Tiffin.
A. J. Hazlett,	.	.	.	.	.	Bucyrus.
J. C. Burnett,	.	.	.	.	.	Sabina.
James W. Owens,	.	.	.	.	.	Newark.

OREGON.

The Governor,	.	.	.	.	.	Portland.
Secretary of State,	.	.	.	.	.	Portland.
H. D. McGuire, Commissioner and Executive Officer,	.	.	.	.	.	Portland.

PENNSYLVANIA.

Fish Commission.

S. B. Stillwell, President,	.	.	.	.	Scranton.
H. C. Demuth,	.	.	.	.	Lancaster.
James W. Correll,	.	.	.	.	Easton.
D. P. Corwin, Secretary, 609 Lewis Building,	.	.	.	.	Pittsburg.
James A. Dale, Corresponding Secretary,	.	.	.	.	York.
John Wamberger,	.	.	.	.	Erie.

Game Commission.

Wm. M. Kennedy, President,	.	.	.	.	Allegheny City.
Coleman K. Sober,	.	.	.	.	Lewisburg.
E. B. Westfall,	.	.	.	.	Williamsport.
James H. Worden,	.	.	.	.	Harrisburg.
Irving A. Stearns,	.	.	.	.	Wilkesbarre.
Charles B. Penrose,	.	.	.	.	Philadelphia.
Dr. Joseph Kalbfus, Secretary,	.	.	.	.	Harrisburg.

RHODE ISLAND.

J. M. K. Southwick,	.	.	.	.	Newport.
Wm. P. Morton, Secretary,	.	.	.	.	Johnstown.
H. T. Root,	.	.	.	.	Providence.
C. W. Willard,	.	.	.	.	Westerly.
A. D. Roberts,	.	.	.	.	Woonsocket.
H. C. Bumpus, Ph.D., Brown University,	Providence.

UTAH.

Fish and Game.

John Sharp,	Salt Lake City.
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VERMONT.

John W. Titcomb,	St. Johnsbury.
Horace W. Bailey,	Newbury.

VIRGINIA.

Frank Fletcher, Chairman,	Jenkins Bridge.
S. F. Miller, Secretary,	Cardinal.
John A. Curtis,	Richmond.
Geo. B. Keezell,	Keezelton.
Pembroke Pettitt,	Palmyra.

WASHINGTON.

The Governor,	Tacoma.
State Treasurer,	Tacoma.
A. C. Little, Fish Commissioner and Game Warden,	Tacoma.

Office, 212-213 Berlin Building.

WISCONSIN.

Edwin E. Bryant, President,	Madison.
Dr. E. A. Birge, Secretary,	Madison.
James Nevin, Superintendent,	Madison.
Calvert Spensley,	Mineral Point.
James J. Hogan,	La Crosse.
Wm. J. Starr,	Eau Claire.
Currie J. Bell,	Bayfield.
Henry D. Smith,	Appleton.
James T. Ellarson, Fish and Game Warden,	Madison.

WYOMING.

Fish and Game.

Gustave Schnitger,	Laramie.
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[B.]

DISTRIBUTION OF FOOD FISH.

TROUT FRY.

Adams Hatchery, May, 1899.

A. M. Nichols, for waters in North Adams.
 I. H. Ripley, for waters in South Lee.
 E. B. Hodskins, for waters in Chester.
 O. E. Hodskins, for waters in Chester.
 G. W. Waterhouse, for waters in Chester.
 C. J. Russell, for waters in Colrain.
 A. R. Willard, for waters in Greenfield.
 J. H. Woods, for waters in Pittsfield.
 F. N. Gibbons, for waters in Granville.
 O. R. Noble, for waters in Granville.
 J. Anderson, for waters in Middlefield.
 B. D. Pierce, for waters in Middlefield.
 J. M. Galusha, for waters in Williamstown.
 W. E. Hoyt, for waters in Williamstown.
 C. F. Bates, for waters in Worthington.
 H. S. Cole, for waters in Worthington.
 A. S. Storm, for waters in Hinsdale.
 W. H. Carey, for waters in Dalton.
 E. T. Peck, for waters in Stockbridge.
 J. S. Moore, for waters in Stockbridge.
 C. W. Burton, for waters in Adams.

Hadley Hatchery.

A. D. Cooke, for waters in South Hadley.
 F. M. Smith, for waters in South Hadley.
 T. F. Buckley, for waters in South Hadley.
 G. Hoffman, for waters in South Hadley.
 G. S. Buckner, for waters in Easthampton.
 J. Connelly, for waters in Easthampton.
 Wm. H. Rieley, for waters in Easthampton.
 F. S. Isebel, for waters in Easthampton.
 Wm. H. Feiker, for waters in Northampton.
 E. N. Foote, for waters in Northampton.
 Wm. H. Richardson, for waters in Northampton.
 J. E. Riley, for waters in West Hatfield.
 Dana Pearson, for waters in Westhampton.
 H. E. Maynard, for waters in Chesterfield.
 A. M. Belden, for waters in Chesterfield.
 C. H. Gere, for waters in Plainfield.

TROUT FRY — *Continued.*

I. J. Walden, for waters in Ashfield.
F. Belden, for waters in Whately.
C. M. Pettingill, for waters in Cum-
mington and Hawley.
A. M. Lyman, for waters in Mon-
tagne.
Calvin Keyser, for waters in Goshen.
F. E. Hawkes, for waters in Goshen.
W. A. Smith, for waters in Goshen.
C. W. Leach, for waters in Leverett.
L. W. West, for waters in Hadley.
A. Marsh, for waters in Williams-
town.
J. W. Bliss, for waters in South Am-
herst.

Sutton Hatchery.

G. E. Whitehead, for waters in Mill-
bury.
G. E. Pogue, for waters in Grafton.
G. W. Bruce, for waters in Grafton.
C. A. Brown, for waters in Grafton.
G. C. Randles, for waters in North-
bridge.
N. Vondell, for waters in North
Grafton.
W. F. Brown, for waters in Paxton.
R. B. Dodge, for waters in Charlton.
I. Comins, for waters in Charlton.
T. P. Brown, for waters in Rutland.
E. D. Marchessault, for waters in
Spencer.
C. V. Dudley, for waters in Whitins-
ville.
W. E. Clark, for waters in Paxton.
Nath. Clark, for waters in Paxton.
T. J. Manly, for waters in Brookfield.
J. Q. Hatch, for waters in North-
borough.
P. Shaughnessey, for waters in Up-
ton.
J. F. Despean, for waters in Upton.
A. Read, for waters in Westfield.
E. G. Clark, for waters in Westfield.
W. F. Shaw, for waters in Westfield.

F. F. Shepard, for waters in West-
field.
W. J. Morton, for waters in West-
field.
Wm. H. Foote, for waters in West-
field.
W. B. Mahoney, for waters in West-
field.
G. H. Perkins, for waters in West-
field.
Chas. Wright, for waters in Russell.
S. F. Stevens, for waters in Russell.
E. H. Smith, for waters in Agawam.
J. Anderson, for waters in Worth-
ington.

Winchester Hatchery.

G. W. Alcott, for waters in Tewks-
bury.
C. Smith, for waters in Chelmsford.
M. L. Soper, for waters in Tyngs-
borough.
G. L. Huntoon, for waters in Dracut.
A. J. Pease, for waters in Dracut.
L. W. Hall, for waters in Dracut.
C. A. Hall, for waters in Billerica.
E. H. Richards, for waters in Bur-
lington.
A. B. Clark, for waters in Peabody.
C. A. Wiggin, for waters in Peabody.
G. H. Webster, for waters in Haver-
hill.
C. F. Winch, for waters in George-
town.
C. R. Morse, for waters in Woburn.
C. P. Abbott, for waters in Grove-
land.
J. H. Jones, for waters in Falmouth.
R. M. Tenney, for waters in George-
town.
O. I. Stowell, for waters in Lynn-
field.
L. C. Hewson, for waters in South
Weymouth.

TROUT FRY — *Concluded.*

Wm. H. Frost <i>et al.</i> , for waters in Phillipston.	W. L. Whitney, for waters in Heath.
Wm. H. Frost <i>et al.</i> , for waters in Petersham.	Andrew Saur, for waters in Charle- mont.
Wm. H. Frost <i>et al.</i> , for waters in Athol.	T. H. Short, for waters in Charle- mont.
Wm. H. Frost <i>et al.</i> , for waters in Orange.	E. C. Hall, for waters in Buckland.
G. C. Chaney, for waters in Leominster.	W. B. Barnes, for waters in East- hampton and Holyoke.
R. Wetherbee, for waters in Lexington.	H. Gilderson, for waters in Haver- hill.
Hon. G. N. Dyer, for waters in Gard- ner, Templeton, Winchendon and Hubbardston.	J. P. Love, for waters in Webster.
L. D. Bailey, for waters in Buckland.	Wm. A. Lang, for waters in Lowell.
E. C. Frost, for waters in Shelburne.	C. A. Stone, for waters in Fitchburg.
L. P. Woodward, for waters in Heath.	J. C. McMullen, for waters in Fitch- burg.
J. C. Winterhalder, for waters in Conway.	J. C. Hartshorne, for waters in Wakefield.
	J. M. Blandier, for waters in Natick.
	J. F. Moynihan, for waters in Stone- ham.

WHITE PERCH.

Machine Works Pond, Whitinsville,	350
Clapp's Pond, Provincetown,	350
Archers, Whitings and Mirimichi, Wrentham,	700
Big Sandy, Furnace and Oldham,	700
Crystal Lake, Haverhill,	350
Podunk Pond, Brookfield,	350

PUT INTO LAKE QUINSIGAMOND FROM SUTTON HATCHERY.

Two years old rainbow trout,	225
Three to five years old brook trout,	75

[C.]

REPORTS OF SPECIAL DEPUTIES.

Following are the reports of the special deputies employed by the Board ; these show the work performed by them.

BRADFORD, Nov. 10, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I have given a large portion of my time to the business of enforcing the fish and game laws, with the following results : —

April 10, S. C. Manning of Newburyport, selling song birds, guilty. April 11, Messrs. Rogers of Lowell, selling song birds, guilty. May 16, Wm. Wickens of Lawrence, three short lobsters (cases placed on file), fined \$15. August 2, E. O. Brown of Gloucester, ten short lobsters, fined \$50. August 16, J. W. Munroe of Boston, six short lobsters, fined \$30. August 17, J. Douglass of Gloucester, unmarked lobster car, fined \$10. September 6, D. B. Newcomb of Salem, uncooked lobster tails, discharged.

The law in relation to the sale of song birds as ornaments went into effect April 1, 1899, and thus far has resulted in materially limiting the destruction of our song birds, very few of which at the present time are being worn or offered for sale at millinery stores in Massachusetts.

I have assisted in securing the conviction of one Lebouffe of Haverhill for trapping and selling song birds. He was fined \$30. I also assisted other deputies in prosecuting violations of the lobster laws, and numerous parties have been before the courts and fined. Still the work of destroying small lobsters, by the catchers breaking the tail and claws from the body, especially during the beach season, has continued with little if any abatement. The annual destruction of the eight and nine inch lobsters by catchers along the coast exceeds 800,000 during the beach season. It requires but little forethought to understand that this constant drain upon the lobster fisheries is destined to eventually destroy the industry in this State. A close season of three months annually might prove a remedy for this growing evil.

I am led to believe that the snaring of game has nearly ceased in sections of the State where formerly large quantities of game were annually destroyed by means of snares. I hear of only two instances of snares being found by hunters in the woods this season, and one of those was where the owner of the premises had caused the snares to be set. The scarcity of game birds may have had a tendency to lessen the number of snares used, but the arrest and conviction of several parties last season have served as a warning to those who formerly resorted to the taking of game by means of snares as a business.

The presence of several flocks of young pheasants in locations where breeding birds have been liberated is substantial evidence that the introduction of this species of game bird is destined to prove a success in the near future.

Respectfully submitted,

B. P. CHADWICK,
Deputy Commissioner.

BOSTON, Oct. 2, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I herewith respectfully submit my report as deputy specially assigned for the months of June, July, August and September, to the waters of Buzzard's Bay, Vineyard Sound and vicinity, to enforce the laws in regard to lobster and menhaden fishermen.

The season of 1899 was the poorest in regard to lobster fishing that has come under my observation since I was put in charge of that locality. Gales and high winds constantly prevailed, so much so that the lobster fishermen were unable to properly tend their gear and market their catch, on account of the extreme roughness of the waters. The loss to the fishermen of pots and gear was such that in many cases, owing to the small catch of marketable lobsters, it did not pay to continue in the business. Of so-called "shorts" there seemed to be an abundance, showing that under favorable circumstances this branch of our fishing industry would again become a source of profit.

I would call the commissioners' attention to the fact that the law is broken nine times out of ten by lobstermen who fish near places occupied by summer residents. Gentlemen whose voices are the loudest in support of laws for the preservation of fish and game are among the first to tempt the fishermen to sell them "shorts" for both food and bait, especially the latter. The rod and reel fishermen in these waters, and those who catch various kinds of fish for the market, will, at any and all times, get "shorts" for baiting purposes. But I will give the majority of lobstermen credit for obeying the laws, although

it entails much loss to them, and will, so long as the laws of Massachusetts in regard to length of "shorts" are different from those of adjacent States. The close proximity of Cuttyhunk to the Rhode Island line makes the seizure of illegal lobsters that are being transported from that island very difficult.

It would help the department greatly if a small launch, forty to fifty feet in length, of fair speed and moderate cost, was placed at the disposal of the deputy in charge of this locality. Menhaden fishermen gave Buzzard's Bay a wide berth last summer, their steamers being observed but very few times. Menhaden were plenty from one end of Buzzard's Bay to the other. Squeteague or weak fish were for the first time in great abundance; the small bays and coves were literally alive with them, affording fine sport to the rod and reel fishermen, taking the place of the blue fish, which seemed to have slipped by in the past season. Bottom fishing in the spring and fall was excellent, but during the summer months fell away to nothing.

Respectfully submitted,

JAMES H. DELANO,

Deputy.

LAWRENCE, NOV. 20, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I enclose my report of fish seen in the fishway this year. I suppose that you know that the river has not been so low for seventeen years. I shut the water out of the fishway in July. Since then there has practically been no river, as far as the fishway was concerned, as there was no stream running down from the dam to call fish up, and a sewer discharged its contents into the river just under the bridge and fouled what little water there was, so that I should think no fish would swim in it. If there were a stream of any size coming over the dam, it would carry this foul water away and there would be no trouble; but as it has been for weeks and months, the dam and the rocks below as dry as a road, only a few pools with water in them, a run of fish was impossible.

This year I have seen no salmon jumping in the river below the dam, and have heard of no one seeing any; also have not seen any in the pools at the foot of the dam when the water was low, as I have in former years, so I think there can be but few in the river. Fish commenced to go up the fishway in April—suckers, chubs and a few lampreys. In May there was a large run of lampreys and a good many suckers and chubs. The lampreys continued to run, growing less in number from day to day, until June 19. A few suckers and chubs were running until the middle of July, since then (up to the first of November) the river has been remarkably low; no water in the fishway.

Respectfully submitted,

THOMAS S. HOLMES.

PROVINCETOWN, Oct. 30, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — Herewith please find my report as deputy commissioner for 1899.

I have visited the fish pounds and fishermen of my district, and furnished the new fishermen with blanks. I have received four complaints for violation of the fish and game laws. These I have investigated.

Quail are not as plenty as in previous years; the heavy snow storm of last February must have destroyed many. Pheasants have been seen on State land at Provincetown a number of times, and I think they are doing well. The spring catch of mackerel in Barnstable Bay was a large increase over that of the last three years.

S. B. RICH,
Deputy Commissioner.

YARMOUTH, Oct. 19, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — In April I tacked up notices at all approaches to the pond, and have seen that they were kept there. I have patrolled around the pond nights. There has been no seining or gill netting so far, and very little hook and line fishing.

There should be a fishway put in at the dam, as the one there is of no account.

Mr. Delano has taken over 2,000 small perch this month.

I have warned six lobster fishermen and read them the law.

Yours respectfully,

S. L. ROBBINS,
Deputy.

[D.]

REPORTS OF UNPAID DEPUTIES.

The following are reports, or extracts from reports, from a few of our large corps of unpaid deputies, who are doing much throughout the State to protect our fish and game and to awaken an interest in, and proper regard for, the laws in this direction. Sufficient are given to show the general feeling in every part of the State, but we have not space for all.

I. Eastern Section of the State.

TISBURY, MASS.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — In my capacity as warden I have made no arrests, though I have spent quite a little time in the country during the close season. Regarding the conditions of fish and game in our vicinity, there is scarcely any fresh-water fishing on the island other than for perch but what is on restricted territory.

The game conditions are much the same as a year ago this time. The quail crop, owing to the heavy fall of snow last year, was not as large as the previous season. Nearly all the birds found as late as November 1 seemed to be very small and unfit to shoot. Partridges do not seem to increase, though they are found over the entire island. The woodcock shooting was not up to what it has been for a number of years. The prairie chickens are exceedingly scarce, though I did see one bunch of eight this fall, which is more than I have seen at any one time together for a number of years. I am convinced that more or less of these birds are shot each year, but as yet I have not been able to get the proper evidence to convict any one. I believe that if the law on these birds could be rigidly enforced for several years, it might then be possible to have an open season for a few days each year. I am pleased to report that the English pheasants, which were liberated by a resident of the island, seem to be increasing. I also desire immediate information regarding the law on these birds. Some of the people of the Vineyard are under the impression that the law allows shooting immediately after Jan. 1, 1900. I do not construe it this way myself, but shall be especially pleased to receive

information from you as to when legal shooting on these birds can commence. It is commented upon that the males are largely in excess of the females. I shall at my own expense liberate several dozen quail in different sections of the island the coming spring.

If agreeable to your commission, I should like to serve the coming year as deputy warden.

JOHN E. HOWLAND.

BOSTON, Dec. 1, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — As deputy commissioners, employed by the Massachusetts Rod and Gun Club, we submit the following report : —

We have spent our whole time during this year in looking up cases, reported to the club, of illegal fishing and shooting. During the spring we spent considerable time watching for illegal seining of smelt on the south shore. We saw four men seining in boats near Quincy Point. We chased them with a pistol, but, the night being dark, were unable to catch them.

October 3 we saw Sidney Gurley of Boxford setting snares and arrested him and secured conviction, with fine of \$20. October 5 we caught Erlin C. Peabody of Middleton setting snares for partridges, and secured a warrant for his arrest. He was fined \$20 for setting snares. October 20 we arrested Patrick S. Clark of Berkley for setting snares for partridges, but did not succeed in getting a conviction against him.

We have investigated a large number of cases of illegal fishing and shooting. In many of these cases, where we could not procure the necessary legal evidence, we have warned the parties, who agreed to desist. There is still a good deal of professional partridge snaring done in some parts of the State ; but it is very difficult to procure the required legal evidence, these men being much more wary than formerly. On the whole, the snaring of partridges has been practised much less this season than last.

Yours respectfully,

W. E. QUIGGLE.
C. E. SCHWORER.

HAVERHILL, MASS., Nov. 10, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — Herewith please find my report as a deputy. I have done all in my power to have the law lived up to, and therefore I have been kept quite busy looking after the law breakers.

I find a great many lobster fishermen who do nothing but catch short lobsters. Owing to the scarcity of lobsters, the price has been

high the whole season, and will be higher next season, unless there are more prosecutions. I have been lenient with a great many that were poor and had large families to support.

I received my appointment May 19, 1899, making about five months' work to date.

Partridge and quail have been very scarce; I think that the law in regard to snaring should be changed, so that a person cannot snare game of any kind on his own land or elsewhere. The total number of prosecutions obtained by me was 137, with fines aggregating \$1,978.50.

If reappointed next year, I shall go on as I have in the past, and do my duty as a deputy, which every officer ought to do.

Yours respectfully,

GEO. J. JERARD,

Deputy.

QUINCY, Nov. 8, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—We forward to you the report of our work for 1899, together with the condition of fish and game in this vicinity.

As in 1898, we have worked together all the year. We have made 10 arrests, with fines amounting to \$290. As to fish and game,—trout we have none to speak of, but black bass, smelts and perch are plenty. Partridge and quail are multiplying, but woodcock are scarce.

Respectfully yours,

CHARLES N. HUNT,

OTIS THAYER,

Deputies.

HINGHAM, MASS.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I respectfully submit the following report of fish and game in my vicinity:—

During the months of March, April and May, two officers and myself watched the Weymouth and Back Rivers for illegal taking of smelt, but did not discover any one. The run of smelts this spring was very small, especially in Weir River. There have been very large catches of smelts this year up to November 1,—the largest for a number of years.

We still have the appropriation of \$200 from the town for enforcing the law for fish and game.

In regard to gunning in the woods, there is very little, and we are not troubled in the least by Italians. Quail and partridge are very scarce.

Respectfully yours,

W. I. JAMES.

HUDSON, MASS., Nov. 10, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In compliance with your request, I respectfully submit the following report:—

I have made no arrests this season, although I have found several parties in the woods prepared to violate the Sunday law, and have frightened them into returning home.

Game was quite plenty at the commencement of the season, but the hunters that hunt to supply the market have thinned it out. A law restricting or prohibiting market hunting is a necessity, and I hope it will be a reality in the near future.

Fish seem to have been as plenty as at other seasons; have heard of no violations of the law. Partridge should be protected until October 15.

Respectfully,

DANIEL D. ROSE.

BEVERLY, MASS., Nov. 20, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In rendering my report for the past year, will say that I arrested one man April 15, in Danvers, for catching smelts. He had twelve fish in his possession when arrested. The following Monday he was brought into the district court, and pleaded guilty. He was fined \$12.

I have kept a strict watch for Sunday violators of the fish and game laws, but have found none. The gunners are afraid of me, and if they have violated the law they have kept out of my way.

Game is very scarce this fall, especially quail and partridge. The pheasants have, I think, made a good showing the past year. There was one large brood just below my house this summer. I should think there were sixteen or eighteen young birds in one flock.

I went hunting quail last week, but did not succeed in finding any, although my dog kept busy hunting the pheasants. I saw several of them.

As regards fish, there is not much change except every year the number of pickerel diminishes. The reason for this is the fact that they are caught in large numbers through the ice.

E. S. PIERCE,
Deputy.

WAKEFIELD, MASS., NOV. 10, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I herewith submit my report for the past year as deputy warden.

Since my appointment I have patrolled the game localities in this vicinity and parts of Lynnfield, Reading and Saugus as often as my business would permit, especially Sundays. Have put up, securely, posters of the fish and game laws sent me, had articles published in local papers regarding close season, and regarding protection of the song and insectivorous birds, and have urged teachers in our public schools to teach their pupils the benefits of bird life and the wickedness of destroying them and their eggs.

I investigated a case of robbing birds' nests; and, as the alleged offenders were very small boys, I visited the parents, who promised to punish their children if guilty.

I investigated a case of shooting quail in close season, which was reported to Mr. Samuel Parker, the senior deputy here, and found the evidence rather weak regarding who was the guilty one, but I warned the alleged offender, who came to me and denied it. However, I think the investigation put a stop to any further trouble from that quarter of the town.

Had complaint made of the illegal use of a net or nets in Lake Quannapowitt. Investigated, and found that the person complained of used a net or nets to catch shiners for bait. I read the law to him, and warned him not to continue the violation of the law, which had the desired effect. This action on my part caused a bad feeling among a number of old acquaintances of mine, and one prominent citizen rushed into print with a very poor argument and with sarcasm toward me, to which I replied with a good argument and in an able manner, I believe.

Have paid especial attention to Sunday shooting, and have done all I could to prevent it; also stopped about six men from fishing on Sunday in Lynn Ponds. There has been some shooting heard by me and others on Sunday, but not much, and I have followed it up as best I could. Was called to Lynnfield to stop Sunday shooting, and put in the greater part of one day there, ready to do my duty; but that day was a quiet one.

Partridges seem to be more plentiful than last season, quail more numerous also; but rabbits are nearly exterminated very near here, which I think is due largely to foxes and to hunters who dig rabbits out of the ground. Have heard of no ferreting, and have seen nothing to indicate it in my rambles, yet some *may* be done very secretly.

I have endeavored to do my duty, yet without being unreasonably strict; and I believe the fact that there are two deputies here has been influential in keeping some from open violation of the laws.

The English sparrow has been and is being made war on by one of our enthusiastic public-spirited citizens, Mr. Rufus Kendrick, with whom I have co-operated; and by a system of rewards he has succeeded in having over four thousand birds and eggs of this bird destroyed, which I believe to be a good movement for the protection of our far superior native song and insectivorous birds.

In concluding my somewhat lengthy report, I would like to suggest that *more* deputies be appointed all over the State, if *good* men can be found to serve without pay; for three or four or six deputies can do more in a town or a locality than two can do; and it seems to me that, if the men can be found who are interested enough to do some work in this line, it is best to appoint such men, for more protection is thus given to our fish and game.

Very respectfully,

ARTHUR S. ABORN,
Deputy.

DRACUT, Nov. 21, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—As per notice from you of this date, I respectfully submit the following report:—

My commission called for the protection of Long Pond against illegal fishing. Later, Mr. Chadwick called on me and instructed me to include all violations of the fish and game laws coming to my notice. Fishing on Long Pond has been improved by the restrictions placed on it by your Board, and, if the same could be applied to the New Hampshire end, it would make a great improvement. I have posted thirty-five notices on and around the pond, and make frequent visits to the same. I have found only one violation, and that was a man coming from another town before daylight to fish, and who got on the pond without seeing the notices. Upon inquiry I found he was a man of honest intentions, therefore I made no charge further than to warn him against coming again.

I find that the restriction on Long Pond is causing a sad drain upon other ponds and streams in this vicinity; therefore I have stopped Sunday fishing as much as possible. I have no trouble in stopping illegal fishing, as people know when an officer means business. I have closely watched people who have the name of seining and blowing the ponds, and have had the satisfaction of seeing them take their boats from Massachusetts waters and place them in another State, where they think they are safe.

I have seen some white perch in Long Pond, mostly at the springs, and think we will have some good fishing in a few years.

There are some deer in the vicinity of the State line in Tyngsborough, and they are quite tame, which is a good sign. Birds are scarce, perhaps due to the dry season.

Sunday shooting in this section is a thing of the past; but there is one thing that is doing more to exterminate our game birds and animals than all the rest put together — that is, the market hunters. I have given this a thorough and careful study, and have proved to my own satisfaction that these men (*protected by the law*) have been the direct cause of the scarcity of game. I can give some facts concerning the methods of certain of these market hunters that would surprise a true sportsman, and if this is not stopped there will soon be no need for game wardens. There is only one way to stop it: that is, to pass and enforce a law prohibiting the sale or exposing for sale of game of any kind or at any season. The sale of game has *got* to be stopped soon, either by the Legislature or the exterminator, and the matter rests with true sportsmen which it shall be.

Yours respectfully,

C. F. SCOTT,
Deputy Commissioner.

WESTFORD, MASS., NOV. 21, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — In submitting my report as deputy game and fish warden of Westford, I beg to state that the men I have met and talked with have been well disposed to observe the spirit of the game and fish laws, and I have had no urgent occasion to make any arrest so far.

I have devoted considerable time to preventing the killing of part-ridges during the budding season, and with apparently good results.

I have also devoted part of every Sunday to travelling over this town, to prevent Sunday hunting, and am satisfied that such hunting is becoming more and more unpopular here, and that there is very little of it done.

The result of making a closed season for Nabnasset Pond has been particularly encouraging, for I have given this much attention, have interested the public in the benefit to be derived, and have met with a ready response. The closed season has been well observed, and this year we have had the best fishing in these waters that there has been for years.

In addition to the white perch placed there last year, I have secured from Washington about 300 black bass, and have bought 125 more black bass; and all these have been put into Nabnasset

Pond, which is a large body of water, with excellent feeding grounds. I look forward to the time when the people of this vicinity will have at their pleasure as good fishing grounds as falls to the fortune of any community.

Game is very scarce in this vicinity, more so than for several years; due largely to there having been too many hunters. The proximity of a city of over 70,000 people, of several villages, and the ready and easy facilities of approach, enable those so disposed to dodge out for an afternoon or for a day in the woods; and the continuation of this, year after year, has seriously depleted the game of all kinds, particularly the birds.

Another influence in exterminating the bird and animal life of the woods has been the side hunts of the various "gun clubs," that have done much to slaughter forest life, which seems to many thinking people unwise and unnecessary.

It has been my policy to interest the hunters and fishermen whom I have met in the common-sense view of the wisdom and spirit of game and fish protection, and there now seems to be a firmer and a more settled feeling throughout this section that these laws should be respected and lived up to.

Respectfully submitted,

HENRY A. FLETCHER.

LOWELL, MASS., NOV. 9, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I respectfully submit the following report of the fish and game in my vicinity:—

During the month of May there was the largest run of eels I have seen for a great many years here at the fishway. On May 22 I found the fishway completely closed up. The men employed by the Locks and Canals Company, having occasion to put new flash-boards on the dam, had boarded the fishway up, and there was no chance for any water to run through. I called at the office of the company and notified them that the fishway was closed up and there should be an opening left on the end of the dam, so as to allow the water to go over and give the fish a chance to get up, and they claimed that the men working on the dam had made a mistake. The boards were taken off, and they fixed it satisfactorily.

During the month of June there was a large run of alewives, and in the month of July I saw six salmon near the fishway. I also saw twelve black bass near the dam, and a large number of chub, suckers, yellow perch and hornpouts.

I had more notices printed, which I posted, allowing no fishing

within four hundred yards of the fishway. I spent a great deal of time at the fishway during May and June, when the water was high and the fish were running. During the last of the summer, when the water was low, the fishway was repaired, but it can still be improved. I yet hope to see a fishway here in Lowell equal to the one recently built in Lawrence.

I have found no nets in Tyng's Pond this year, and the white perch fishing has been very good. Have taken up and destroyed two set lines in this pond; and in Mud Pond, which is connected with Tyng's Pond, have found three set lines.

Leach's Pond in Chelmsford has produced some good strings of pickerel this summer. This pond was stocked two years ago with white perch, and after June 1 next year will be open to the public without restrictions.

Some good strings of pickerel have also been caught in Nabnasset Pond, which was stocked with white perch last year, no fishing being allowed between December 1 and June 1 for three years.

Great Pond, in North Andover, was leased in 1884 for fifteen years to inhabitants of the town. The lease expired Sept. 5, 1899, and the pond has been fished a great deal of late. Some splendid strings of perch, bass and pickerel have been taken, with live shiners for bait.

I recommend that fishing through the ice in all State ponds be prohibited for a period of five years.

There has been some complaint made about Sunday shooting, and I have spent considerable time in the woods on Sunday; and as a result I had one man in court, who was found guilty and fined. I have not heard any complaint since.

Game is not so plenty in this vicinity as last year. Partridges are scarce, as are also woodcock. Gray squirrels and rabbits are not as plenty as last year. I have given notice that all persons using ferrets in hunting rabbits will be prosecuted.

If reappointed, I will continue to look after the violators of the fish and game laws.

Respectfully yours,

GEORGE T. SPENCE,
Deputy.

AMESBURY, MASS., NOV. 10, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — My duties as deputy the past season have been confined to my own town. I have made no arrests, for which the sportsmen should have the credit rather than myself, although I have spent both time and money in the protection of fish and game.

On behalf of the sportsmen, I desire to thank the honorable gentleman who has so long served us so faithfully as chairman of the Board of Commissioners, to whom we are indebted for many favors. I would bespeak for his successor the same good feeling and hearty support which has been accorded Mr. Brackett by all true sportsmen.

Respectfully submitted,

F. R. WHITCHER,

Deputy.

PEMBROKE, MASS., Dec. 6, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— Since nature created a new mouth for North River, men of experience with fish say that we have the best river in the State, and that, if the fish had a chance, there would be an abundance of them. After herring entered the river this fall, codfish were so plentiful that boats came from Scituate harbor and other places, and a great many codfish were caught. It seems to me that if herring were allowed to run up to the ponds in spawning time, instead of a few thousand being carted up in barrels, there would enough come down in the fall to make a great amount of feed for larger fish in Massachusetts Bay. This town voted last March to let the herring run up, but it was not done. The laws do not seem to be just right to have the thing run smoothly. If other ponds here had fishways, it would give shad and bass a chance.

If you think of trying to get through any new laws this winter, I shall be pleased to assist you in any way that I can. If you should think it advisable to send any one here to look the thing over, I will meet the party at the depot and take him where he may wish to go.

Yours respectfully,

C. I. ROGERS,

Fish Warden.

PALMER, MASS., Dec. 4, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— Replying to your letter of a few days ago, I will say that the writer has made no arrests during the past year, and has had no occasion to do work of importance, beyond the looking up of the circumstances which led to the death of a fawn near North Dana, Mass., which, it was found, died from natural causes.

Fishing was good in this vicinity, trout being seemingly plentiful, and numerous catches of fine black bass were made in the rivers.

Game, on the other hand, has been scarcer than for years, particularly gray squirrels and partridge. This, I think, may in a measure be attributed to the severity of the past winter. Rabbits are, as usual, plentiful, and numerous reports of deer in this and neighboring towns have been heard.

It has been impossible for me to give more than a small amount of the time I should be pleased to give to this work, as I could not, without pay, afford to neglect my regular work; but such time as I have been able to spend has been devoted to an effort to stop snaring, and I have been able, I think, to do some good in this direction.

There has been considerable Sunday hunting and fishing here, as, indeed, there is in nearly every part of the State. I do not think our present methods for reaching the law-breakers are adequate. A few salaried deputies, who are sportsmen and thoroughly interested, could do a world of good in one season.

Yours truly,

GEO. A. MOORE,
Deputy.

2. *Central Section of the State.*

ATHOL, MASS., NOV. 22, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In making my report for the year 1899 there is not very much I can say, except to repeat some past reports.

I think that the hunters and fishermen have kept very well within the limits of the law all through the year.

Deer are seen hereabouts very often, and are very tame, several having been near the village, and one came in and fed upon some of the lawns in front of the houses. Partridge and squirrels are very scarce, the pot hunters with dogs having killed a large number in 1898. One man shipped to Worcester and Springfield three hundred and ten grouse.

Respectfully submitted,

W. U. FROST.

LANCASTER, MASS., NOV. 21, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In reply to your request to forward a report at once, I will say that it gives me much pleasure to state that there has been a marked improvement in the observance of the fish and game laws in this town the past season.

Our streams have not yielded as many fish this season as in years past.

Game is very scarce. Quite a number of deer have been seen within the limits of this town the past year. No attempts have been made to capture them in any way, so far as I have known.

I have made no arrests.

Respectfully,

A. J. KENNEDY.

WARE, MASS., NOV. 1, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — Since my appointment, in April, 1899, I have made every effort to see that the laws were properly observed, and to do this I have spent a good portion of Sundays in watching the streams and woods. Prior to my appointment the laws in regard to fishing and hunting were generally disregarded. I notified several violators that if they persisted in a disregard of the law I should have them prosecuted. When they found I intended to treat them right, but insisted upon their stopping, I had no further trouble with them. I have in addition warned about twenty people, who have made a practice of hunting and fishing on Sunday, that they must stop, and they have. I have also patrolled the woods and streams between Ware, Gilbertville, Ware Centre, Greenwich and Wheelwright, and have stopped Sunday hunting and fishing in those places. I have gone over this section once in every two or three weeks. Where it was a common thing to hear guns banging and dogs barking on Sunday heretofore, I am glad to say that it is now the exception and not the rule.

If you have any suggestions to make or any directions to give, I shall be pleased to receive them at any time. In the meanwhile, I shall continue to see that the law is enforced as far as possible.

Very truly yours,

DENNIS SHEA.

NORTH BROOKFIELD, MASS., NOV. 2, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — The fish and game laws, with a few exceptions, of which I presume you are aware, have been fairly well observed in this section during the year.

The game birds have held their own, and it has been an unusually good season for trout. Pond fishing has been very poor, for some unknown cause.

Shall be pleased to be reappointed. Should also like to see Mr. N. H. De Lane reappointed, as he has been a great help to the Fish Association here.

Respectfully yours,

T. J. MANLY,
Deputy.

THORNDIKE, MASS., Nov. 21, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — As to convictions and arrests, I have none to report for the year. I have, however, notified some whom I thought were doing some snaring to stop it, or prosecution would follow.

Trout fishing in this section was never better than it has been this year, and some very fine strings have been taken from local streams.

Game has been rather scarce, and hunters have not had any luck to speak of. Partridge has been unusually scarce. Woodcock and quail have been a thing of the past here; none have been seen this year, a fact which hunters cannot account for.

I have destroyed two set lines and a few snares, which were no doubt set by pot hunters.

Several deer have made their appearance in this section the past year. They appeared very tame, and in one instance were feeding with cattle, and did not leave the premises until they were driven off. No attempt has been made to capture or molest them in any way.

This season has been a good one for black bass, perch and pickerel, and many good strings have been taken. Some of the bass weighed three and four pounds each. They were taken from the rivers.

We have an excellent small lake here which I would like to stock with bass or lake trout. I will write you again in regard to the matter.

You will pardon my delay in sending report.

Respectfully,

JOHN F. LUMAN.

LEICESTER, MASS., Nov. 22, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I submit the following report: —

I have spent all my spare time in looking after and enforcing the fish and game laws for the past year.

October 18, with one of the civil officers of this town, I arrested Lewis Stacio and Peates Rosso for illegal fishing, and was in court with them the next morning. These cases were placed on file, on payment of costs, which were \$14. Oct. 28, 1899, with Deputy H. A. Mower of Worcester, Frank L. Bisco and Elmer F. Edwards were arrested for fishing on Sunday and using nets. The Sunday case was placed on file, and they were fined \$40 each for using nets. The nets were sent to the hatchery at Wilkinsonville.

Game is not very plenty in this section, but is hunted quite largely. Quail are quite plenty. I have seen several lately.

I will enforce the fish and game laws to my best ability.

Yours truly,

TIMOTHY MCCARTHY.

WORCESTER, MASS., NOV. 3, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In making my report for the year past, I can say I have devoted my entire time to propagation and protection of fish and game. I have made 44 arrests and convicted 33, all but one for illegal fishing. One was convicted for shooting a partridge before September 15. The smallest fine was \$2, for taking black bass with set line; the largest \$40, for using net in pond. I have warned a good many people who were ignorantly breaking laws, as I believe it is far better for an unpaid deputy to educate the people than to arrest in all cases,—prosecute, not persecute.

In the spring I caught in brooks, with hook and line, 637 wild trout, and put them in the State hatchery at Sutton. In midsummer I hired teams and netted several thousand in brooks (almost dry), and placed them in safety in large brooks.

I find birds, especially partridges, fast diminishing, due principally to market shooting.

I think it advisable to pass stringent laws, shortening the open season on all game from October 1 to December 1; also prohibiting entirely the sale in Massachusetts of partridge, quail and woodcock.

While I fear and favor no person, I have made enemies, also friends. I will try and serve the State faithfully and honestly.

Respectfully,

HENRY A. MOWER.

LEICESTER, MASS., NOV. 1, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have made no arrests, and Sunday shooting has been very quiet around here.

I think the hunting season should be shortened, having it from October to December, as birds are very scarce.

Yours truly,

H. B. WATTS.

3. *Western Section of the State.*

HOLLAND, MASS.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In accordance with the requirements named in my appointment, I herein make return of what little I have done in the year that has gone.

Sunday fishing has been stopped, and the use of ferrets has been almost if not entirely abandoned.

Deer have been seen here quite frequently, one old and two young, which are quite tame. There are those here who, but for some one

looking after this business, would not hesitate, in my opinion, to shoot them at once.

Fearing there has been less done the past year than may be desired,
I beg to remain respectfully yours, A. F. BLODGETT.

FLORIDA, MASS., NOV. 22, 1899.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In answer to your card, calling for my report, I will say I have made no arrests as yet.

In regard to fish, the brooks in this vicinity are well stocked with small trout this fall. Every brook is a trout stream, and more fish are in the brooks than have been seen before for a number of years; but I think that they should have some protection as regards length, as in this town I have known cases where one hundred and fifty small trout would be taken by one man in a day, and they would not average over three and one-half or four inches in length.

Partridges are quite plenty, and hardly any snaring is done. Deer are numerous; they are seen often, and are very tame, coming into gardens within ten rods of a house, and eating beets and carrots as fast as they grow.

L. E. RUBERG.

NORTH ADAMS, MASS., NOV. 10, 1899.

To the Commissioners on Inland Fisheries and Game.

DEAR SIR:—I hereby submit the following report of the fish and game in my vicinity:—

The trout season in this vicinity has been a good one. On the first of October I found a net in the tunnel brook, which had evidently been there some time. The net was then useless, and I destroyed it.

Have found no snares this season, and have received no complaints. This is the first fall for some years that no birds have been brought in here for sale. Partridge and woodcock have been plentiful. In regard to the Sunday fishing and hunting, I would say that we have them well in hand in this neighborhood, and when men do venture out, they most always go into Vermont, which is only two miles from here.

A number of deer have been seen in this vicinity, but no reports of shooting or dogs chasing them have reached me.

The water here the past season has been very low, but had excellent luck, as the streams stocked this season held out good and none of them went dry.

Respectfully yours,

A. M. NICHOLS,
Deputy.

LITHIA, MASS., Nov. 8, 1899.

To the Commissioners on Inland Fisheries and Game.

DEAR SIRs : — The first of May I arrested two men fishing together on a posted and privately stocked brook (fined \$2 each). About the middle of May I arrested three boys fishing together on the same brook (fined \$5 each). These are all the arrests I have made.

Has any one the right to catch fish from a posted brook, fishing from bridge or public road? Or to shoot game beside a public road, where it is posted each side?

Partridges not very plenty, and there are very few woodcock in this section. Deer have been seen here several times this fall. There seems to be more small trout than usual in the streams this summer.

Yours,

_____ F. P. STONE.

SPRINGFIELD, MASS.

To the Commissioners on Inland Fisheries and Game.

DEAR SIRs : — Just returned from a trip through Tolland, Granville and Blandford, where I destroyed more than a thousand snares. From information received, large numbers of partridges have been snared in the western part of Hampden County, and shipped to New York. This of course has depleted this species of game.

As to fish, I have found in my travels seven nets less than four inch mesh, that were in use the first part of the year; but since my appointment there has been very little netting.

I have stopped Sunday fishing almost entirely since the three convictions; but there have been a number of black bass taken less than eight inches long, and I have had two young men before the court, and they were fined on that count.

Yours truly,

W. S. WHEELER.

[E.]
REPORT UPON CONVICTIONS AND FINES, BY UNPAID DEPUTIES.

STATE v. —	TOWN.	Offence.	Deputy.	Court Decision.	Fine.
J. Collins, . . .	Danvers, . .	Fishing, . .	Goldsmith and Pierce, .	Convicted,	\$12 00
L. Cook, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	\$25 00
H. A. Burnham, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	25 00
D. Callahan, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	25 00
E. Burnham, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	25 00
G. McIntyre, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	10 00
F. Burnham, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	10 00
G. Doty, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	10 00
E. Story, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	10 00
H. Jeffs, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	25 00
F. McIntyre, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,*	25 00
H. A. Burnham, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	25 00
F. Cook, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,*	25 00
T. Proctor, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,*	10 00
J. C. S. Callahan, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,*	} 12 00†
J. Truitt, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,*	
A. H. Cobb, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,*	
T. Houghton, . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	10 00
S. Bailey, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	15 00
S. Small, . . .	Ipswich, . .	Fishing, . .	James A. Lord, .	Convicted,	15 00
L. J. Noyes, . .	Ipswich, . .	Lobster car not marked,	James A. Lord, .	Convicted,	5 00
H. P. Randall, . .	Ipswich, . .	Sunday shooting, . .	James A. Lord, .	Convicted,	282 00

* On file.

† Paid costs.

Report upon Convictions and Fines, by Unpaid Deputies — Continued.

STATE v. —	TOWN.	Offence.	Deputy.	Court Decision.	Fine.
D. McIntosh, . . .	Quiney, . . .	Short lobsters, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	\$35 00
C. Wilson, . . .	Hull, . . .	Short lobsters, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	75 00
R. Haskard, . . .	Hull, . . .	Short lobsters, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	60 00
T. Augustus, . . .	Hull, . . .	Short lobsters, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	60 00
H. Patterson, . . .	Boston, . . .	Pursuing wild fowl, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	20 00
J. Hanson, . . .	Boston, . . .	Sunday shooting, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	10 00
W. Johnson, . . .	Boston, . . .	Sunday shooting, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	10 00
E. Carlson, . . .	Boston, . . .	Sunday shooting, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	10 00
J. Anderson, . . .	Boston, . . .	Sunday shooting, . . .	C. N. Hunt and O. Thayer, . . .	Convicted, . . .	10 00
					\$290 00
A. Morse, . . .	Goshen, . . .	Illegal fishing, . . .	E. P. Stone, . . .	Convicted, . . .	\$2 00
F. Roberts, . . .	Goshen, . . .	Illegal fishing, . . .	F. P. Stone, . . .	Convicted, . . .	2 00
J. Martin, . . .	Goshen, . . .	Illegal fishing, . . .	F. P. Stone, . . .	Convicted, . . .	5 00
C. F. Shaw, . . .	Goshen, . . .	Illegal fishing, . . .	F. P. Stone, . . .	Convicted, . . .	5 00
W. H. Walker, . . .	Goshen, . . .	Illegal fishing, . . .	F. P. Stone, . . .	Convicted, . . .	5 00
					19 00
J. Eagan, . . .	Lowell, . . .	Sunday shooting, . . .	G. T. Spence, . . .	Convicted, . . .	\$5 00
					5 00
W. A. Burt, . . .	Malden, . . .	Illegal fishing, . . .	S. Parker, Jr., . . .	Convicted,* . . .	—
L. J. Lee, . . .	Malden, . . .	Illegal fishing, . . .	S. Parker, Jr., . . .	Convicted,* . . .	—

L. Hall,	Worcester,	Illegal fishing,	J. F. Cumming,	Convicted,	\$20 00	20 00
J. Monte,	Pittsfield,	Illegal fishing,	Benj. Smith,	Convicted,	\$20 00	
P. Samsachet,	Cheshire,	Illegal fishing,	Benj. Smith,	Convicted,	20 00	
P. Samsachet,	Adams,	Illegal fishing,	Benj. Smith,	Convicted,	6 00	
D. Miller,	Adams,	Shooting robins,	Benj. Smith,	Convicted,	2 00	48 00
W. Lappett,	Florida,	Sunday fishing,	E. R. Burnett,	Convicted,	\$6 00	
J. Prucher,	Florida,	Sunday shooting,	E. R. Burnett,	Convicted,	5 00	
S. Gurley,	Boxford,	Snare,	W. E. Quiggle,	Convicted,	\$20 00	11 00
E. C. Peabody,	Middleton,	Snare,	W. E. Quiggle,	Convicted,	20 00	40 00
A. Swift,	Martha's Vineyard,	Short lobsters,	E. B. Andrus,	Convicted,	\$10 00	
O. Eaton,	Martha's Vineyard,	Shooting song, birds,	E. B. Andrus,	Convicted,	5 00	
A. White,	Martha's Vineyard,	Sunday shooting,	E. B. Andrus,	Convicted,	10 00	
M. Mason,	Martha's Vineyard,	Sunday shooting,	E. B. Andrus,	Convicted,	10 00	
T. Geoffrey,	Martha's Vineyard,	Sunday shooting,	E. B. Andrus,	Convicted,	10 00	45 00
J. Monte,	Springfield,	Sunday fishing,	W. S. Wheeler,	Convicted,	\$3 00	
C. Barbari,	Springfield,	Sunday fishing,	W. S. Wheeler,	Convicted,	3 00	
J. Horacek,	Springfield,	Sunday fishing,	W. S. Wheeler,	Convicted,	3 00	
F. H. Clapp,	Springfield,	Sunday shooting,	W. S. Wheeler,	Convicted,	5 00	
J. J. Flavin,	Springfield,	Illegal bass,	W. S. Wheeler,	Convicted,	10 00	
E. J. Stanton,	Springfield,	Illegal bass,	W. S. Wheeler,	Convicted,	10 00	

* On file.

Report upon Convictions and Fines, by Unpaid Deputies—Continued.

STATE v. —	TOWN.	Offence.	Deputy.	Court Decision.	Fine.
T. Pendleton,	Westfield,	Sunday hunting,	W. S. Wheeler,	Convicted,	\$10 00
W. Pendleton,	Westfield,	Sunday hunting,	W. S. Wheeler,	Convicted,	10 00
L. Rowley,	Westfield,	Sunday hunting and shooting.	W. S. Wheeler,	Convicted,	15 00
E. Cowdrey,	Westfield,	Sunday hunting and shooting.	W. S. Wheeler,	Convicted,	15 00
					\$84 00
L. Stacio,	Leicester,	Illegal fishing,	T. McCarthy,	Convicted,†	—
P. Rosso,	Leicester,	Illegal fishing,	T. McCarthy,	Convicted,	—
J. C. Hummitt,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	\$5 00
R. C. Latour,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
J. H. Morer,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
C. J. Neal,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
R. W. Rogers,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
A. N. Clark,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
C. Jewett,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
S. Clarke,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
H. J. Bennett,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
J. Johnson,	Worcester,*	Net fishing,	H. A. Mower,	Convicted,	20 00
C. Bergstrom,	Worcester,*	Net fishing,	H. A. Mower,	Convicted,	20 00
E. Morse,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
F. Halberg,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
F. Graham,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
W. Murley,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
F. Marble,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
W. Wheelock,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00

A. F. Allen, .	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
W. Marble, .	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
A. Cummings,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
E. Hitchcock,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
A. Vicals, .	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	5 00
W. Vinton, .	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
C. Prince, .	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
E. Hapgood,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
H. H. Flint, .	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	10 00
F. D. Bates, .	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	25 00
E. V. Wakefield,	Worcester,*	Trawl fishing,	H. A. Mower,	Convicted,	25 00
E. V. Allen, .	Worcester,*	Illegal bass,	H. A. Mower,	Convicted,	2 00
F. L. Bisco, .	Worcester,*	Sunday fishing,	H. A. Mower,	Convicted,†	} 40 00
F. L. Bisco, .	Worcester,*	Net fishing,	H. A. Mower,	Convicted,†	
E. F. Edwards,	Worcester,*	Sunday fishing,	H. A. Mower,	Convicted,†	} 40 00
E. F. Edwards,	Worcester,*	Net fishing,	H. A. Mower,	Convicted,†	
J. Schaeffer,	Worcester,*	Net fishing,	H. A. Mower,	Convicted,†	20 00
					352 00
S. P. Pike, .	Lowell,	Short lobsters,	G. J. Jerard,	Convicted,	\$5 00
S. P. Pike, .	Lowell,	Short lobsters,	G. J. Jerard,	Convicted,	20 00
Wm. Sullivan,	Lowell,	Short lobsters,	G. J. Jerard,	Convicted,	15 00
Walker & Thompson,	Lowell,	Short lobsters,	G. J. Jerard,	Convicted,	15 00
A. M. Kelley,	Lowell,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
D. L. Page & Co.,	Lowell,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
E. Putnam, .	Worcester,	Short lobsters,	G. J. Jerard,	Convicted,	5 00
F. Douglass,	Worcester,	Short lobsters,	G. J. Jerard,	Convicted,	15 00
C. W. Parker,	Worcester,	Egg-bearing and short lobsters,	G. J. Jerard,	Convicted,	15 00
W. E. Merrill,	Worcester,	Short lobsters,	G. J. Jerard,	Convicted,	5 00

* And adjacent towns.

† On file.

Report upon Convictions and Fines, by Unpaid Deputies — Continued.

STATE v. —	TOWN.	Offence.	Deputy.	Court Decision.	Fine.
N. S. Brown,	Worcester, .	Short lobsters,	G. J. Jerard,	Convicted,	\$5 00
H. Bullock, .	Worcester, .	Short lobsters,	G. J. Jerard,	Convicted,	5 00
J. W. Ekins,	Worcester, .	Egg-bearing and short lobsters.	G. J. Jerard,	Convicted,	20 00
J. Cazelle, .	Revere Beach,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
S. B. Fowler,	Salisbury Beach,	Short lobsters,	G. J. Jerard,	Convicted,	5 00
A. J. Fuller, .	Nahant Beach,	Short lobsters,	G. J. Jerard,	Convicted,	5 00
O. A. Johnson,	Nahant Beach,	Short lobsters,	G. J. Jerard,	Convicted,	5 00
A. Thompson,	Boston, .	Short lobsters,	G. J. Jerard,	Convicted,	20 00
M. J. Kane, .	Boston, .	Short lobsters,	G. J. Jerard,	Convicted,	85 00
J. J. Hubert,	Boston, .	Short lobsters,	G. J. Jerard,	Convicted,	15 00
N. E. Lobster Company,	Boston, .	Short lobsters,	G. J. Jerard,	Convicted,	10 00
Williams Bros.,	Lynn, .	Short lobsters,	G. J. Jerard,	Convicted,	15 00
J. Lear, .	Lynn, .	Short lobsters,	G. J. Jerard,	Convicted,	5 00
C. Olsen, .	Lynn, .	Short lobsters,	G. J. Jerard,	Convicted,	5 00
J. Holbrook,	Lynn, .	Short lobsters,	G. J. Jerard,	Convicted,	10 00
J. C. Darwin,	Salem, .	Short lobsters,	G. J. Jerard,	Convicted,	30 00
J. Clark, .	Salem, .	Short lobsters,	G. J. Jerard,	Convicted,	50 00
J. McCarthy,	Salem, .	Short lobsters,	G. J. Jerard,	Convicted,	5 00
D. B. Newcomb,	Salem, .	Short lobsters,	G. J. Jerard,	Convicted,	20 00
R. E. Dodge,	Peabody, .	Short lobsters,	G. J. Jerard,	Convicted,	15 00
H. B. Johnson,	Beverly, .	Short lobsters,	G. J. Jerard,	Convicted,	5 00
T. Atwood, .	Plymouth, .	Short lobsters,	G. J. Jerard,	Convicted,	15 00
H. Targeson,	Plymouth, .	Short lobsters,	G. J. Jerard,	Convicted,	35 00
G. Sampson,	Green Harbor, .	Short lobsters,	G. J. Jerard,	Convicted,	10 00
W. Cushing,	Green Harbor, .	Short lobsters,	G. J. Jerard,	Convicted,	20 00
H. C. Phillips,	Brant Rock, .	Short lobsters,	G. J. Jerard,	Convicted,	10 00

L. Thurston,	Chiltonville,	Short lobsters,	G. J. Jerard,	Convicted,	15 00
A. C. Sampson,	Chiltonville,	Short lobsters,	G. J. Jerard,	Convicted,	30 00
C. Wakefield,	White Horse,	Short lobsters,	G. J. Jerard,	Convicted,	25 00
J. Harris,	Lawrence,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
E. Lufkin,	Lawrence,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
W. Wickens,	Lawrence,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
J. P. Kent,	Lawrence,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
W. L. Churchill,	Lawrence,	Short lobsters,	G. J. Jerard,	Convicted,	5 00
P. Mahoney,	South Boston,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
F. J. Thornton,	South Boston,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
F. J. Thornton,	South Boston,	Egg-bearing lobsters,	G. J. Jerard,	Convicted,	10 00
C. E. Hendricks,	South Boston,	Short lobsters,	G. J. Jerard,	Convicted,	25 00
E. J. Hendricks,	South Boston,	Short lobsters,	G. J. Jerard,	Convicted,	25 00
H. Beal,	Hingham,	Short lobsters,	G. J. Jerard,	Convicted,	55 00
D. O. Wade,	Nantasket Beach,	Short lobsters,	G. J. Jerard,	Convicted,	45 00
C. B. Turner,	Nantasket Beach,	Short lobsters,	G. J. Jerard,	Convicted,	35 00
H. H. Burr,	Nantasket Beach,	Short lobsters,	G. J. Jerard,	Convicted,	45 00
J. H. Stackpole,	Nantasket Beach,	Short lobsters,	G. J. Jerard,	Convicted,	15 00
E. M. Beims,	Gloucester,	Short lobsters,	G. J. Jerard,	Convicted,	50 00
W. C. Dolliver,	Gloucester,	Short lobsters,	G. J. Jerard,	Convicted,	30 00
J. Norwood,	Gloucester,	Short lobsters,	G. J. Jerard,	Convicted,	10 00
H. C. Starks,	Charlestown,	Short lobsters,	G. J. Jerard,	Convicted,	30 00
J. W. Savage,	Charlestown,	Short lobsters,	G. J. Jerard,	Convicted,	25 00
J. W. Savage,	Charlestown,	Short lobsters,	G. J. Jerard,	Convicted,	25 00
J. W. Savage,	Charlestown,	Short lobsters,	G. J. Jerard,	Convicted,	5 00
A. T. Nickerson,	Charlestown,	Short lobsters,	G. J. Jerard,	Convicted,	25 00
A. Crampsey,	Lynn,	Short lobsters,	G. J. Jerard,	Convicted,*	15 00
S. M. Kehoe,	Swampscott,	Short lobsters,	G. J. Jerard,	Convicted,*	20 00
W. S. Fletcher,	Boston,	Short lobsters,	G. J. Jerard,	Convicted,*	25 00
C. Elderton,	Lynn,	Mutilated lobsters,	G. J. Jerard,	Convicted,	65 00
E. Brann,	Nahant,	Mutilated lobsters,	G. J. Jerard,	Convicted,	300 00

* Appealed.

Report upon Convictions and Fines, by Unpaid Deputies — Concluded.

STATE v. —	TOWN.	Offence.	Deputy.	Court Decision	Fine.
H. Hunt, . . .	Lynn, . . .	Mutilated lobsters, . . .	G. J. Jerard, . . .	Convicted,	\$25 00
C. Ward, . . .	Lynn, . . .	Mutilated lobsters, . . .	G. S. Jerard, . . .	Convicted,	20 00
C. Harrington, . . .	Salem, . . .	Mutilated lobsters, . . .	G. J. Jerard, . . .	Convicted,*	105 00
L. F. Norton, . . .	Salem, . . .	Mutilated lobsters, . . .	G. J. Jerard, . . .	Convicted,*	30 00
J. Boutin, . . .	Chiltonville, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
C. Boutin, . . .	Chiltonville, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
G. Atwell, . . .	Chiltonville, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
A. Hardaway, . . .	Chiltonville, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
A. Sampson, . . .	Chiltonville, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
W. H. Tolman, . . .	Green Harbor, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
W. Cushing, . . .	Green Harbor, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	13 00
C. Wakefield, . . .	White Horse, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	13 00
W. Peterson, . . .	White Horse, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
F. Peterson, . . .	White Horse, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
P. Mahoney, . . .	South Boston, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
C. H. Place, . . .	Nantasket, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
C. Wilson, . . .	Nantasket, . . .	Lobster cars not marked, . . .	G. J. Jerard, . . .	Convicted,	10 00
O. Lefeau, . . .	Haverhill, . . .	Birds for millinery, . . .	G. J. Jerard, . . .	Convicted,	10 00
W. E. Clark, . . .	East Brookfield, . . .	Duck hunting on Sunday, . . .	G. J. Jerard, . . .	Convicted,	10 00
T. Dalley, . . .	East Brookfield, . . .	Discharging firearms on Sunday, . . .	G. J. Jerard, . . .	Convicted,	10 00
J. Doerner, . . .	Worcester, . . .	Sunday hunting with ferret, . . .	G. J. Jerard, . . .	Convicted,	20 00
C. Slick, . . .	Worcester, . . .	Sunday hunting with ferret, . . .	G. J. Jerard, . . .	Convicted,	20 00
L. J. Noyes, . . .	Newburyport, . . .	Sunday fishing, . . .	G. J. Jerard, . . .	Convicted,	3 50
F. E. Bishop, . . .	Lynn, . . .	Sunday fishing, . . .	G. J. Jerard, . . .	Convicted,	1 00

[F.]

LEGISLATION.

Acts of 1899.

[CHAPTER 103.]

AN ACT TO PROVIDE FOR THE ENFORCEMENT OF ORDERS MADE BY THE COMMISSIONERS ON INLAND FISHERIES AND GAME RELATIVE TO FISHWAYS.

Be it enacted, etc., as follows:

SECTION 1. Section four of chapter ninety-one of the Public Statutes is hereby amended by adding at the end thereof the following words:—The supreme judicial court, or any justice thereof, and the superior court, or any justice thereof, shall in term time or vacation, on the petition of said commissioners, have jurisdiction in equity or otherwise to enforce any order made under the authority of this section, and to prevent any violation of such order,—so as to read as follows:—*Section 4.* The commissioners may examine all dams upon rivers where the law requires fishways to be maintained, and shall determine whether the fishways, if any, are suitable and sufficient for the passage of the fish in such rivers; and shall prescribe by an order in writing what changes or repairs, if any, shall be made therein, and at what times the same shall be kept open, and give notice to the owners of the dams accordingly. The supreme judicial court, or any justice thereof, and the superior court, or any justice thereof, shall in term time or vacation, on the petition of said commissioners, have jurisdiction in equity or otherwise to enforce any order made under the authority of this section, and to prevent any violation of such order.

SECTION 2. This act shall take effect upon its passage. [*Approved February 24, 1899.*]

[CHAPTER 107.]

AN ACT TO PROVIDE FOR THE CULTIVATION OF FOOD FISH.

Be it enacted, etc., as follows:

SECTION 1. The commissioners on inland fisheries and game may occupy and control Mill pond, situated in the town of Yarmouth, for

the purpose of cultivating food fish for distribution within the Commonwealth.

SECTION 2. Any one who fishes in said pond in any other manner than with hand line and single hook, without the written consent of the commissioners, shall forfeit not less than fifty nor more than two hundred dollars for the first offence, and not less than one hundred nor more than two hundred dollars for any subsequent offence, one half of the fine to be paid to the Commonwealth and one half to the complainant.

SECTION 3. This act shall take effect upon its passage. [*Approved February 28, 1899.*]

[CHAPTER 116.]

AN ACT TO MAKE THE LORD'S DAY CLOSE SEASON FOR BIRDS AND GAME.

Be it enacted, etc., as follows :

Every Lord's day shall be close season. Whoever hunts or destroys birds or game of any kind on the Lord's day shall be liable to the penalties imposed for violation of the law during other close seasons, and such penalties shall be in addition to those already imposed for violation of the laws relating to shooting upon the Lord's day. [*Approved March 1, 1899.*]

[CHAPTER 289.]

AN ACT FOR THE PROTECTION OF SMALL GAME IN THE TOWN OF ESSEX.

Be it enacted, etc., as follows :

SECTION 1. Whoever takes or kills a rabbit, gray squirrel or chipmunk, or any land bird, except the English sparrow, and any beach or marsh birds, within the limits of the town of Essex in this Commonwealth, at any time within five years from the passage of this act, shall be punished by a fine of twenty dollars for every such rabbit, squirrel, chipmunk or bird so taken or killed.

SECTION 2. This act shall take effect upon its acceptance by a majority of the voters of said town present and voting thereon at any legally called town meeting. [*Approved April 20, 1899.*]

[CHAPTER 360.]

AN ACT RELATIVE TO FINES AND FORFEITURES UNDER THE LAWS
PROTECTING FISH AND GAME.

Be it enacted, etc., as follows :

SECTION 1. All fines, penalties and forfeitures derived from prosecutions for violation of the laws protecting fish and game shall be paid, one half thereof to the Commonwealth and one half to the complainant, unless the complainant is a deputy appointed by the commissioners of inland fisheries and game, receiving compensation from the Commonwealth, in which case the whole of such fine, penalty or forfeiture shall be paid to the Commonwealth.

SECTION 2. All acts and parts of acts inconsistent herewith are hereby repealed.

SECTION 3. This act shall take effect upon its passage. [*Approved May 11, 1899.*]

[G.]

LOBSTER RETURNS.

1899.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Joseph Safarino, .	Boston, . . .	3,440	110,553	2,024
Antone Ferreira, .				
John Sandstrom, .				
John M. Moura, .				
Joaquin Perry, .				
John Pinto, .				
M. Rosa Dias, .				
Andrew Hanson, .				
August Brown, .				
Antonio Corrio, .				
Jules Rose, .				
Andrew Ferreira, .				
Joseph P. Silva, .				
Manuel Grace, .				
J. P. Serrilha, .				
Joseph Gasker, .				
Mathew P. Gile, .				
Joseph Rogers, .				
Manuel Silva, .				
Jose Alberto, .				
Thomas McAfee, .				
Antonie Silva, .				
Antonio Costa, .				
Jacinth Silveria, .				
Antone P. Silva, .				
Manuel Corrio, .				
Chas. C. Foster, . .	Beverly, . . .	40	1,001	24
H. W. Tollman, . .	Brant Rock, .	172	5,311	85
A. L. Manter, . .				
H. P. Taylor, . .				
Henry L. Phinney, .				
D. B. Blackman, . .	Bournedale, .	165	5,528	219
Clarence S. Ryder, .				
F. C. Leonard, . .				
Albert Nightingale, .				

Lobster Returns — Continued.

PROPRIETOR	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Augustus Hadaway,	Chiltonville,	518	29,359	612
Geo. Atwell,				
Geo. Boutin,				
Ernest Johns,				
Charles Boutin,				
R. F. Swift,				
O. A. Robbins,				
Geo. F. Hadaway,				
L. S. Thurston,	Chilmark,	227	7,278	171
H. S. Sampson,				
Austin E. Smith,				
E. L. Athern,				
E. C. Mayhew,				
E. A. Pool,				
F. P. Flanders,				
A. T. Pool,				
Anslow Stewart,	Cohasset,	780	40,830	1,049
Wm. S. Mayhew,				
L. E. Cottle,				
Robert Ainsley,				
Chas. Anderson,				
Andrew Peterson,				
M. S. Thomas,				
Oscar Anderson,	Chatham,	896	10,574	257
Levi Cadoza,				
J. J. Grassie,				
Joseph Silva,				
A. S. Hammond,				
W. F. Hitchings,				
J. D. Bloomer,				
E. Z. Ryder,				
B. N. Bloomer,				
R. F. Bearse,				
Sylvester Eldredge,				
A. W. Smith,				
F. B. Nickerson & Co.,				
Robert Ellis,				
Arthur Baker,				
C. W. Jones,				
O. M. Gould,				
B. E. Basset,				
Wm. R. Bloomer,				
Geo. W. Bloomer,				
F. W. Baker,				

Lobster Returns—Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Robert Jackson, . . . John Manley, . . . Joshua Keeney, . . . H. J. Allen, . . . Frank Peters, . . . F. M. Cottle, . . . Levi Jackson, . . . J. F. Crowell, . . . Sam'l E. Jackson, . . . J. H. Tilton, . . . R. W. Rotch, . . . C. C. Allen, . . . O. H. Stetson, . . . C. C. Church, . . .	Cuttyhunk, . . .	600	46,418	1,050
Geo. E. Hall, . . . A. P. Howes, . . . R. R. Nickerson, . . . Chas. McDowell, . . . John M. Stone, . . .	Dennis, . . .	95	1,315	260
Edmund Marsh, . . . Geo. F. Freeman, . . . S. P. Burgess, . . . O. C. Hunt, . . . E. W. Cook, . . . W. E. Peterson, . . . Isaac Symmes, . . . Wm. E. Freeman, . . . F. E. Wardsworth, . . . S. G. I. Wardsworth, . . . Clarence Smith, . . .	South Duxbury, . .	444	40,018	508
J. H. Butts, . . .	Dartmouth, . . .	40	748	36
Manuel De Loura, . . . John Bunker, . . . H. O. Hillman, . . .	Edgartown, . . .	91	4,059	246
W. A. Grew, . . . Daniel Jennings, . . .	Falmouth, . . .	58	782	14
H. N. Wilber, . . .	Fairhaven, . . .	20	322	40
Fred L. Gamache, . . .	Fall River, . . .	50	1,323	83
F. G. McDowell, . . . Daniel L. Gibbs, . . .	Gosnold, . . .	75	1,534	107

Lobster Returns—Continued.

PROPRIETOR	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
C. H. Ryan, . . .	Gay Head, . .	35	1,701	119
E. D. Rust, . . .	Gloucester, . .	387	26,201	365
H. W. Nelson, . .				
D. N. Mehlman, . .				
E. F. Parsons, . .				
Joseph Douglass, .				
Melvin Parsons, .				
Joseph Parsons, .	Green Harbor, .	620	27,856	474
Thomas Pezzy, . .				
W. H. Englestead, .				
Lyman Sears, . .				
D. J. Graffum, . .				
Geo. Sampson, . .				
W. H. Tolman, . .				
C. R. Peterson, . .				
Geo. Delano, . .				
Wilfred Keene, . .				
W. M. Cushing, . .				
H. P. Tolman, . .				
B. P. Williamson, .				
O. S. Crosby, . . .	Hyannis, . . .	20	224	—
A. B. Cleverley, . .	Hull,	216	7,725	102
Daniel McDonald, .				
E. F. Pope, . . .				
J. & D. Reed, . .				
B. F. Pope, . . .	Ipswich, . . .	126	2,749	83
A. W. Montgomery, .				
Chas. A. Bayley, . .				
John D. Gibbon, . .				
Sam'l S. Bayley, . .				
W. B. Atkinson, . .	Island Creek, .	60	3,387	17
Frank C. Chandler, .				
James C. Kelley, . .	Kingston, . . .	50	2,862	—
C. F. Stranger, . . .				
G. W. Woodbury, . .				
Adison Woodbury, .	Lanesville, . .	60	2,146	106
Abner Bates, . . .				
Lilburne Hiller, . .	Mattapoissett, .	15	97	12

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
J. B. Knowlton, . . . }	Magnolia, . . .	62	1,855	45
J. G. Burnham, . . . }				
Chas. Sargent, . . . }	Manchester, . . .	204	9,258	326
J. S. West, . . . }				
J. J. Slade, . . . }				
E. L. Small, . . . }				
L. O. Sargent, . . . }				
David C. Jones, . . . }				
Thomas Dow, . . . }				
A. P. Tilton,	Marion,	60	2,709	-
J. H. Hennessey, . . . }	Marblehead, . . .	1,024	74,470	2,310
C. H. Smethurst, . . . }				
Phillips & Gilbert, . . . }				
Sans Stanley, . . . }				
R. T. Millett, . . . }				
J. G. Gilbert, . . . }				
R. T. Russell, . . . }				
S. Q. Smith, . . . }				
J. E. Brown, . . . }				
B. F. Stevens, . . . }				
John F. Trefry, . . . }				
J. W. Mace, . . . }				
Wm. S. Glass, . . . }				
J. W. Smithers, . . . }				
John Hanson, . . . }				
Wm. T. Smith, . . . }				
J. S. Stone, . . . }				
Wm. H. Tutt, . . . }				
S. K. Stone, . . . }				
Wm. T. Gardner, . . . }				
B. H. Sweet, . . . }				
J. G. Stacey, . . . }				
J. W. Mullett, . . . }				
B. Farry, . . . }				
L. F. Hickey, . . . }				
G. A. Manter, . . . }	Manomet, . . .	1,101	58,062	1,552
L. B. Briggs, . . . }				
T. L. Blake, . . . }				
D. H. Briggs, . . . }				
Wm. H. Peterson, . . . }				
C. H. Dixon, . . . }				
James Gould, . . . }				
Stephen Holmes, . . . }				
F. P. Peterson, . . . }				

Lobster Returns—Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
C. W. Holmes, . . Sam'l Bartlett, . . Thomas Stevens, . . W. J. Nightingale, . . I. H. Valler, . . Chas. Wakefield, . . R. W. Wells, . . C. H. Fisher, . . C. Briggs, Jr., . . A. L. Holmes, . . Henry Dodge, . . Robert Richardson, . . B. B. Abbe, Jr., . . Thomas Jordan, . . M. G. Foster, . . Geo. W. Frost, . .	Manomet, . .	1,101	58,062	1,552
Chas. P. Mattison, . . G. B. Tabor, . . Albert Peters, . . Joseph Souza, . . Manuel F. Diras, . . Manuel Gracie, . . Manuel Simmons, . . Thos Johnson, . .	New Bedford, .	310	10,251	891
Lewis J. Noyes, . .	Newburyport, .	15	105	2
Geo. L. Hatch, . . A. A. Norcross, . .	Nantasket, . .	56	2,157	91
Geo. H. Dunham, . . J. P. West, . . Jessie Leel, . . John Watkins, . . Wm. Norcross, . . J. A. Backus, . . A. B. Brooks, . . A. P. Dunham, . . G. E. Coffin, . . E. F. Snow, . . A. C. Swain, . .	Nantucket, . .	376	5,627	204
G. W. Taylor, . . C. W. Taylor, . .	Nahant, . .	32	825	19

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
D. B. Gould, . . . } F. H. Hayden, . . . } Caleb Hayden, . . . }	Orleans, . . .	85	1,913	52
J. H. Little, . . . } J. C. Lurten, . . . } Geo. W. Freeman, . . . } A. W. Newcomb, . . . } E. S. Newcomb, . . . } F. M. Bowley, . . . } W. C. Snow, . . . } Wm. C. Kenney, . . . } Manuel Enos, . . . }	Provincetown, . . .	275	5,648	694
A. C. Sampson, . . . } W. Goddard, Jr., . . . } J. R. Thurston, . . . } James Deacon, . . . } J. H. Bagnall, . . . } W. R. Thomas, . . . } L. G. Doten, . . . }	Plymouth, . . .	266	13,141	89
C. P. Peterson, . . .	Quincy, . . .	60	1,758	19
F. Josef, . . .	Quisset, . . .	35	213	14
Chas. Parker, . . . } E. W. Haines, . . . } John Elvander, . . . } Chas. E. Hoxie, . . . } F. E. Perry, . . . }	Sandwich, . . .	103	1,472	85
A. H. Gibbs, . . . } H. F. Cunningham, . . . } N. W. Cahoon, . . . }	Sagamore, . . .	60	975	50
A. E. Reed, . . . } L. W. Mayhew, . . . }	Squibnocket, . . .	55	1,354	28
E. A. Greenough, . . . } C. S. Brown, . . . } G. W. Berry, . . . } John Clark, . . . } C. H. Berry, . . . }	Salem, . . .	255	9,135	256

Lobster Returns — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Thomas Turner, . . . } Harry Driscoll, . . . } E. P. Pratt, . . . } E. Pratt, . . . } Robert Ohearne, . . . } John Conroy, . . . } James Dwyer, . . . } Geo. F. Edson, . . . } D. H. Ward, . . . } J. F. Cushman, . . . } C. B. Stetson, . . . } John Ward, . . . } Thos. Dwyer, . . . } John Patterson, . . . } John Barry, . . . }	Scituate, . . .	805	28,435	314
R. A. Douglass, . . . } G. A. R. Horton, . . . }	Swampscott, . . .	65	1,685	35
S. B. Fowler, . . . } D. E. Foot, . . . } C. H. Lord, . . . }	Salisbury, . . .	44	313	10
Silas Ryder, . . . } C. C. Collins, . . . } John Myricks, . . . } W. W. Freeman, . . . }	Truro, . . .	100	969	35
G. W. Manter, . . . } G. A. Rogers, . . . } J. A. Mayhew, . . . }	Tisbury, . . .	54	1,924	32
W. A. Day, . . . } F. M. Chase, . . . } M. F. Cleveland, . . . } C. V. McMahan, . . . } E. W. Cleveland, . . . } A. B. Lewis, . . . } E. L. Chadwick, . . . }	Vineyard Haven,	118	2,542	152
T. J. Brightman, . . . } Geo. A. Gifford, . . . }	Westport, . . .	65	1,276	115
J. B. Wyman, . . . } W. E. Wyman, . . . }	Winthrop, . . .	120	14,235	382

Lobster Returns — Concluded.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.							
H. P. Phinney, . . Thos. Hinckley, . . P. M. Stewart, . . O. C. Grinnell, . . A. C. Swain, . . . J. F. Cook, . . . N. C. Phinney, . . L. L. Adams, . . . Alfred Nickerson, . W. E. Nickerson, . .	Woods Holl, . .	181	9,609	604							
Wm. Cahoon, . . . D. P. Phillips, . . .					Yarmouth, . .	64	846	1			
Totals (men, 327),									15,350	644,663	16,470

Comparison of Returns of Lobster Fisheries.

YEAR	Number of Men.	Number of Traps.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Increase of 1894 over 1893, . . .	54	3,291	—	2,156
Decrease of 1894 below 1893, . . .	—	—	52,898	—
Increase of 1895 over 1894, . . .	—	—	—	—
Decrease of 1895 below 1894, . . .	48	3,098	140,469	554
Increase of 1896 over 1895, . . .	76	4,836	39,031	—
Decrease of 1896 below 1895, . . .	—	—	—	3,873
Increase of 1897 over 1896, . . .	—	—	—	—
Decrease of 1897 below 1896, . . .	65	3,212	99,123	6,751
Increase of 1898 over 1897, . . .	—	—	—	—
Decrease of 1898 below 1897, . . .	48	2,634	175,860	3,788
Increase of 1899 over 1898, . . .	—	—	—	—
Decrease of 1899 below 1898, . . .	13	845	75,750	3,461

GILL AND SWEEP NETS.

1899.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Thomas James,	Bay View,	-	-	9,000	-
Herbert Lovell,	Barnstable,	-	-	-	-
I. N. Babbitt,	Berkley,	1,066	233,649	-	-
E. D. Perry,					
C. N. Simmons,					
J. H. Newcomb,	Brewster,	-	6,234	-	-
Joseph Boutin,	Chiltonville,	-	-	-	501
C. E. Bearse,	Centreville,	-	-	-	-
Robert Ainsley,	Cohasset,	-	-	8,091	-
C. C. Nickerson,	Chatham,	-	-	-	-
R. F. Nickerson,					
Robert Ellis,					
W. F. Hitchings,					
J. D. Bloomer,					
B. E. Bassett,					
G. W. Bloomer,					
A. W. Smith,					
W. E. Greenleaf,	Dennis,	-	-	-	-
Isaac Symmes,	South Duxbury,	111	-	-	-
C. N. Simmons,	Dighton,	700	210,000	-	-
Walter S. Osborne,	Edgartown,	-	222,271	-	-
F. F. Besse,	Falmouth,	-	118,000	-	-
Joseph Parsons,	Gloucester,	-	800	39,500	2,062
Edwin Taylor,	Hyannis,	-	-	-	-
O. S. Crosby,					
Leonidas Deane,	Middleborough,	-	80,409	-	-
J. D. Smith,	Manomet,	-	4	3	-
Wm. Harlow,					
L. B. Briggs,					
C. Briggs,					
Abner Harlow,	Mattapoisett,	-	106,092	-	-
B. F. Stevens,	Marblehead,	64	2,000	1,200	-
C. A. Caswell,	Newburyport,	-	-	750	-
Joseph Thurlow,					

GILL AND SWEEP NETS.

1899.

[illegible]

Gill and Sweep Nets—Continued.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Leander Small, . . . A. J. Barrett, . . . C. S. Glidden & Co., . . . E. W. Ramsdell, . . . Manuel Thomas, . . . John Watkins, . . . W. I. Fisher, . . . Geo. H. Hamblin, . . . Alexander Swain, . . . G. W. Winslow, . . .	Nantucket, . . .	-	-	-	-
J. G. Rand, . . . J. F. Silva, . . . S. F. Atwood, . . . J. S. Rogers, . . . L. P. Hatch, . . . Jesse Ghen, . . . Wm. M. Wareham, . . . D. W. Atwood, . . . S. L. Ellis, . . . A. A. Mayo, . . . F. I. Sears, . . . J. P. Atkins, . . . J. W. Fuller, . . . Daniel Williams, . . . Elisha Rich, . . . B. Silva, . . . H. S. Cook, . . . C. W. Maker, . . . M. Vera, . . . J. E. Weeks, . . . J. Newcomb, . . . H. N. Smith, . . . J. H. Little, . . . J. C. Lurten, . . . M. V. Silva, . . . A. M. Sparrow, . . . G. H. Harlbert, . . . G. W. Freeman, . . . A. L. Daggett, . . . H. L. Mayo, . . . Manuel Carter, . . . F. S. Alves, . . . Frank Days, . . . W. M. Elwell, . . . M. Silva, . . . Chas. Baker, . . . E. A. Weldon, . . . J. R. Swartz, . . . Wm. Dyer, . . . Prince Freeman, . . . J. D. Smith, . . . W. W. Freeman, . . . R. W. Cook, . . . Reuben Ryder, . . . Joseph Patrick, . . . R. O. Kelley, . . . J. H. Emery, . . . Z. Rich, . . . B. R. Kelley, . . . C. H. Emery, . . . E. H. Tillson, . . . E. W. Smith, . . . J. A. Cobb, . . . J. R. Williams, . . .	Provincetown, . . .	30,839	2,696	466,175	22,333
Stephen Holmes, . . .	Plymouth, . . .	-	-	28	-
G. B. & E. Williams, . . . Gustavus King, . . .	Raynham, . . .	1,683	84,965	-	-

Gill and Sweep Nets—Continued.

Striped Bass.	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
3	689	280	1	101	37	1,535	12,796	-	14,170	-	-	76	-
-	-	707	-	-	915	4	233,338	2	2,603	5,800	284,966	2,764	137,071
-	-	-	-	-	-	-	64	-	-	-	-	-	-

Gill and Sweep Nets—Concluded.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.	Menhaden.
Melvin Rich,	Rockport,	-	-	20,950	50
E. W. Haines,	Sandwich,	7	123	-	7
C. H. Parker,					
S. F. Cushing,					
John Elvander,					
Freeland E. Perry,					
F. E. Hunt,	Salisbury,	-	55,600	177,600	-
C. N. Simmons,	Somerset,	100	50,000	-	-
C. H. Collins,	Truro,	-	-	63	204
J. C. Myricks,					
Silas Ryder,					
W. W. Freeman,					
H. P. Macomber,	Taunton,	100	34,710	-	-
W. P. Doane,	Wellfleet,	-	200,961	7,200	800
Geo. Baker,					
Frank D. Grinnell,	Westport,	-	-	-	-
F. F. Besse,	Wareham,	-	465,000	-	-
Roland Kelley,	Yarmouth,	-	7,931	-	-
Sylvanus Robbins,					
Totals (120 men), . . . . .	. . . . .	34,670	1,881,445	711,705	25,957

Gill and Sweep Nets — Concluded.

Striped Bass.	Scup.	Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	-	-	2,324	-	-	-	-	-	-
-	-	-	-	-	-	-	1,473	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	2	-	-	36	-	1,156	-	87	-	-	44	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	1,200	-	15	20	2,000	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	4,020
-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	36,050	-	2	-	500	-	-
376	698	1,961	1	101	1,095	1,660	298,561	2	18,553	5,820	287,857	2,884	246,171

POUNDS AND WEIRS.

1899.

Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	7,860	-	-	-	-	-	-
3,550	-	-	-	2	5,631	7	-	8,500	400	12,000	3,100
1,367	-	1	73	21	310,706	-	77	1,549	18,306	28,200	20,564
9,000	720	-	-	112	270,777	-	75	385	-	21,000	4,230
6,526	36	29	30,833	826	258,924	3	170	176	3,641	140,818	215
57,064	3	4,371	11,774	2,945	1,094	-	79	125	7,800	23,767	-
62,500	-	21,520	166,200	-	-	-	-	17,470	-	-	249,300
1,736	16	1	1,602	243	313,190	1	96	134	68	89,510	2,580
337	-	1	-	12	31,749	1	786	1,052	1,505	33,632	25
67,187	15	8,111	12,683	475	4,634	-	11	290	5,105	63,702	5,167
4	-	1	3,433	-	43,578	-	-	349	335	5,950	71,251
22	-	-	-	-	-	-	-	-	3,626	-	3,687
-	-	-	221	-	5,970	-	-	-	-	-	-
-	-	-	107	-	33,637	-	-	126	36	-	-
-	-	-	456	-	16,840	-	-	106	3,124	19,472	9,964
742	-	-	740	8	156,060	-	117	37	144,221	125,100	23,341

Pounds and Weirs — Concluded.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.
T. L. Mayo & Co., . .	Revere, . .	-	-	-	926,800	-	-	-
Isaiah Spindell, . .	Sandwich, . .	-	100	-	-	2,400	-	-
G. A. Phinney, . .	Sagamore, . .	-	525	-	-	1,300	-	-
G. W. Manter, . .	Tisbury, . .	-	72	31,260	27,747	3,440	94	402,069
Wm. L. Pease & Co., . .								
H. N. Luce, . .								
O. S. Daggett, . .								
J. R. Walker, . .								
Jason Luce & Co., . .								
H. W. Daggett, . .	Truro, . .	5	2,261	94,000	6,307,575	14,410	3	-
John Pease & Co., . .								
R. A. Rich, . .								
Atkins Hughes & Co., . .								
S. B. Atwood, . .	Vin'rd Haven,	-	1	860	-	30	-	58,082
Wm. F. Baker, . .								
N. B. Rich & Co., . .								
Eben Luce, . .								
Totals (60 men or firms),* . .	. . . .	20	13,622	706,533	11,844,242	72,021	434	1,385,291

* The number of men or firms given here includes only the owners of pounds or weirs. Several hundred men would be required to operate the nets, but no statistics of the crews have been obtained.

Pounds and Weirs—Concluded.

Squeteague.	King-fish.	Sea-bass.	Butter-fish.	Bonito.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	170	-	17,813	-	-	-	-	4,000	2,000
680	-	-	-	10	9,422	-	-	1,192	100	54,600	250
2,797	-	-	-	13	8,305	-	-	812	-	24,000	445
76,583	100	5,155	9,805	11,794	2,018	6	333	1,641	10,747	108,452	1,187
3,746	-	-	7,051	224	1,724,207	-	27	284	48,271	1,003,965	55,654
555	1	154	75	2,241	814	-	1	-	347	2,000	-
294,396	891	39,344	245,223	18,926	3,223,184	18	1,772	34,228	247,632	1,760,168	452,960

Comparison of Returns for the Years 1882 to 1899, inclusive.

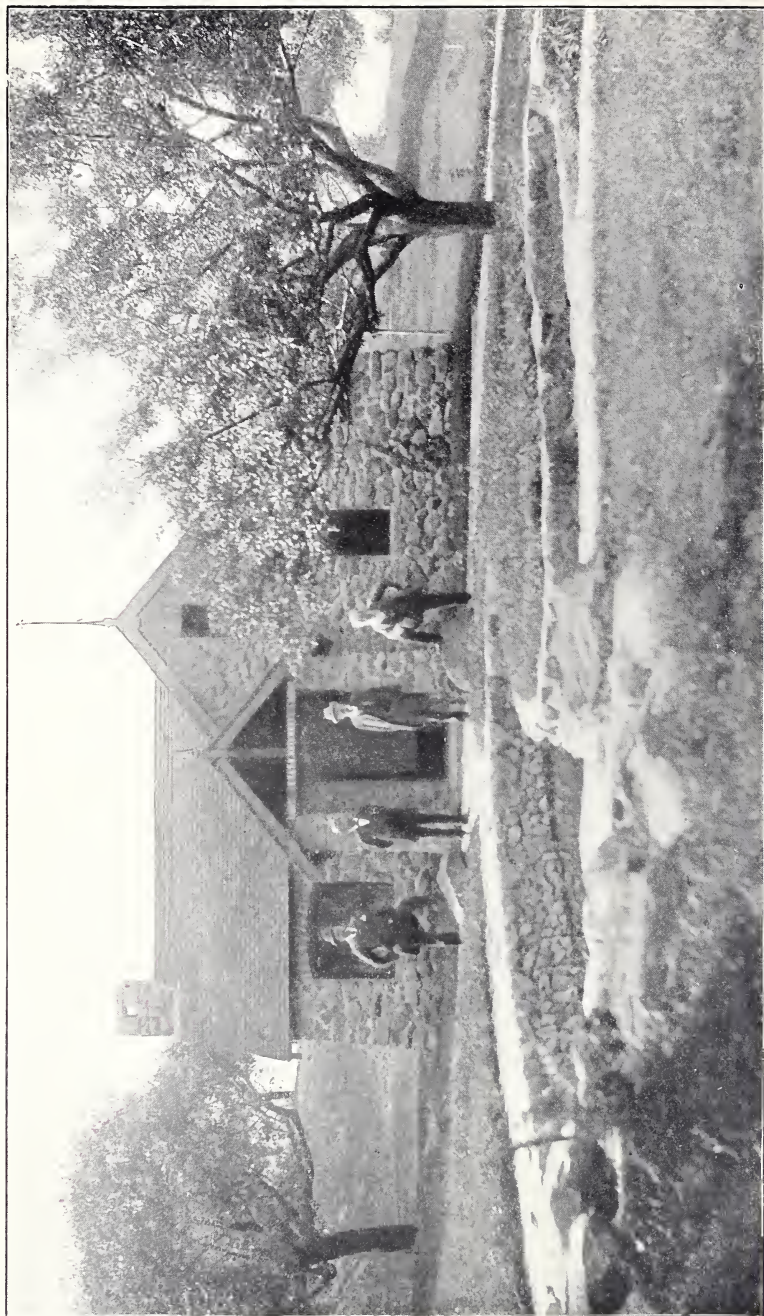
YEAR.	FISHERIES.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.	No.														
1882,	Pounds and weirs,	85	27,769	1,420,919	1,201,449	8,102	4,219	1,991,480	67,266	3,289,512	310	133,805	40,512	114,843	4,016	-
1883,	"	87	5,394	1,250,263	339,116	4,048,022	2,876	1,848,583	92,671	4,756,490	246	60,182	35,481	184,387	5,361	-
1884,	"	93	5,392	1,715,886	2,806,263	3,981	6,950	1,641,129	174,746	1,440,486	99	109,694	23,929	288,930	33,980	-
1885,	"	80	18,088	1,066,148	6,564,619	6,255	1,365	1,240,630	17,746	2,643,100	24	32,575	47,231	317,082	7,741	198,698
1886,	"	58	13,874	1,012,802	1,364,684	48,910	2,412	1,966,243	3,226	1,290,466	20	17,315	47,480	261,595	11,570	572,334
1887,	"	62	14,044	1,453,820	1,713,846	127,451	1,233	2,133,504	13,742	1,063,669	109	44,204	89,075	304,492	7,615	812,810
1888,	"	83	50,037	1,094,607	6,665,698	1,202,777	4,424	1,418,461	127,602	2,877,708	115	38,376	63,214	358,917	10,805	2,716,892
1889,	"	103	23,931	1,417,360	17,000,308	1,203,689	4,924	1,331,673	36,043	825,152	524	17,287	69,719	289,993	20,163	1,859,974
1890,	"	87	26,587	1,198,561	4,432,690	2,011,970	5,302	354,443	93,988	1,297,264	1,242	20,633	25,637	210,476	9,180	958,872
1891,	"	87	26,587	2,039,107	10,643,504	1,976,856	1,413	3,160,446	98,749	3,045,814	323	28,535	33,476	389,416	17,511	1,588,890
1892,	"	83	14,658	1,031,160	15,739,505	124,917	1,410	2,421,985	70,085	4,706,233	47	16,296	45,881	346,772	8,069	1,588,890
1893,	"	99	13,440	816,841	16,895,378	1,615,025	561	2,216,406	304,806	2,283,685	2,011	15,842	34,894	284,122	2,643,123	1,419,042
1894,	"	105	6,754	1,378,703	15,361,317	1,152,174	1,849	394,224	300,875	4,127,338	269	14,799	28,715	195,643	2,086,309	1,242,595
1895,	"	102	14,823	1,000,938	22,182,517	1,052,983	2,465	1,464,697	145,331	786,987	58	26,024	435,267	356,933	3,006,544	4,209,153
1896,	"	101	10,616	1,269,475	11,063,681	563,241	1,098	3,663,723	269,345	1,770,146	77	9,965	91,569	194,804	3,800,121	4,082,706
1897,	"	79	7,491	833,128	9,409,543	1,661,813	6,810	2,923,723	274,616	1,232,887	26	12,736	50,705	174,672	1,139,953	2,610,875
1898,	"	58	3,734	191,682	8,783,002	494,292	1,896	1,413,812	330,047	2,024,294	51	7,168	9,505	286,322	1,390,573	2,564,028
1899,	"	60	13,622	706,533	11,844,242	72,021	434	1,385,291	294,396	3,223,184	18	1,772	34,228	247,632	1,760,168	452,960
1888,	Traps, fykes and irregular returns,	8	-	5,150	252,685	7,750	-	-	-	288,466	-	-	-	3,123	3,544	-
1889,	Traps, fykes and irregular returns,	15	2,994	89,516	1,212,942	184,239	64	86	54	64,938	1	2,690	339	2,246	2,060	76,073
1882,	Gill nets and sea seines,	133	1,738	424,630	310,611	633	1,427	99,046	4,205	587,087	87	191,668	6,245	33,487	3,033	-
1883,	"	112	26	41,906	79,689	937,627	1,838	6,254	1,102	392,535	4	131,815	966	12,681	1,755	-
1884,	"	85	6,544	67,312	541,680	1,526	632	7,255	3,254	216,829	6	136,068	1,578	19,631	2,426	-
1885,	"	78	444	117,674	182,151	9,546	601	26,894	1,656	183,106	1	101,371	233	30,948	867	5,454
1886,	"	49	22	397,727	151,782	311	1,324	13,019	42	75,463	9	32,343	1,039	14,392	21,670	17,326
1887,	"	35	801	367,109	779,211	57	601	676	2,586	177,401	3	22,018	457	14,206	30,416	4,708
1888,	"	142	92,010	468,994	734,374	94,310	1,349	7,704	2,027	633,627	2,172	199,546	1,317	14,206	30,416	4,708
1889,	"	208	4,533	401,445	357,054	202,094	1,421	4,062	4,545	271,017	157	55,718	2,576	33,745	199,360	80,008
1890,	"	183	1,448	174,213	686,948	239,474	1,980	2,289	1,141	209,863	1,488	181,401	754	29,950	81,979	94,448
1891,	"	94	8,308	315,641	315,641	43,624	229	489	365	688,110	89	55,254	80	26,824	10,336	24,324
1892,	"	91	214	444,024	967,567	1,827	422	1,988	260	163,759	71	48,100	59	75,614	14,220	23,711
1893,	"	121	910	291,451	1,120,514	52,495	1	141	1,391	301,368	71	56,381	75	66,377	882	106,561
1894,	"	183	409	184,393	956,130	496,704	358	13	1,450	766,573	1,182	85,342	203	61,238	7,876	18,406

Comparison of Returns for the Years 1882 to 1899, inclusive—Concluded.

YEAR.	FISHERIES.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.	No.														
1885.	Taunton River seines,	8	3,804	1,201,697			2	600								250,375
1886.	" "	10	3,769	1,473,870			22									
1887.	" "	8	3,069	1,135,435												
1888.	" "	7	3,519	955,852												
1889.	" "	8	3,649	613,324												
1882.	Other fresh-water seines,	25	897	1,538,659			234									
1883.	" "	23	391	1,762,950			1,072									
1884.	" "	13	22	610,847			897									
1885.	" "	13	8	1,296,449												
1886.	" "	7	300	797,365												25,275
1887.	" "	5		454,409												11,520
1888.	" "	19	6	1,026,042			4									6,068
1889.	" "	8		513,001										1,053		
1890.	" "	6		738,310												
1891.	" "	9		1,251,394												
1892.	" "	5		794,936												
1893.	" "	5		545,613												
1894.	" "	9	7	1,003,947												
1895.	" "	5		491,084												
1896.	" "	6		703,774												
1897.	" "	6		464,207												
1898.	" "	7		920,746												
1899.	" "	7		1,200,664												9,050
1882.	Total returns,	261	44,734	4,446,280	1,512,060	8,735	5,929	2,090,526	71,471	3,876,569	397	325,473	46,757	148,330	7,049	
1883.	" "	239	15,160	4,178,682	418,605	4,985,049	5,080	1,854,837	93,773	5,149,025	250	191,997	36,807	197,068	7,116	
1884.	" "	205	17,699	2,353,781	3,347,892	309,907	7,582	1,648,984	78,080	1,637,315	105	245,762	30,507	307,971	36,406	
1885.	" "	184	25,347	8,747,750	6,546,770	15,801	1,881	1,297,484	19,402	2,896,346	25	133,946	47,464	348,030	8,708	134,159
1886.	" "	124	19,468	3,183,741	1,590,468	49,921	3,936	1,979,263	3,268	1,395,850	29	55,031	48,678	276,187	58,872	590,650
1887.	" "	112	13,292	2,108,642	2,345,632	97,510	1,833	2,144,973	18,957	1,037,595	112	66,422	89,065	326,220	50,071	818,633
1888.	" "	264	143,200	3,677,929	7,603,433	1,556,036	3,275	1,672,610	123,850	3,801,393	2,489	240,874	70,923	432,710	40,634	2,873,420
1889.	" "	352	40,461	3,617,329	4,826,352	6,414	6,414	1,336,821	40,642	1,161,107	694	75,695	72,634	321,984	221,583	2,015,993
1890.	" "	291	23,303	3,038,920	5,482,120	6,431,804	7,282	3,160,935	99,284	3,209,564	2,730	242,034	26,831	240,920	102,789	1,112,820
1891.	" "	202	37,346	4,954,822	11,108,745	4,500,052	1,642	3,160,935	99,284	3,209,564	4,412	83,609	33,556	416,240	83,377	594,118
1892.	" "	193	16,928	3,173,923	17,241,072	126,744	2,273	2,423,923	70,345	5,394,352	48	64,396	45,940	423,541	38,194	1,620,997
1893.	" "	235	18,474	4,155,576	19,760,292	4,277,520	562	2,216,547	306,287	2,585,086	2,082	72,223	34,969	350,749	2,643,505	1,598,571

1894,	"	"	309	12,684	5,633,300	16,321,847	1,632,078	2,207	394,237	302,325	4,898,911	1,451	100,141	28,918	256,881	2,094,185	8,914,569
1895,	"	"	265	36,830	2,805,594	24,363,699	1,831,370	2,679	1,465,387	147,454	1,140,756	61	49,573	436,090	463,503	3,075,436	13,756,795
1896,	"	"	307	25,154	4,629,110	18,470,855	736,244	1,713	3,664,967	270,432	2,371,444	98	75,984	42,451	401,882	3,836,545	4,498,824
1897,	"	"	255	20,636	2,507,285	18,086,624	1,922,054	8,768	2,728,086	275,126	1,606,195	26	91,285	50,705	613,293	1,235,825	3,591,991
1898,	"	"	195	7,330	2,085,751	9,152,800	695,773	2,463	1,414,266	332,679	2,285,317	71	66,619	18,257	589,315	980,642	3,128,709
1899,	"	"	180	48,292	2,587,978	12,555,947	97,978	810	1,385,989	296,357	3,521,745	20	20,325	40,048	535,489	1,763,052	1,006,392
Increase of 1885 over 1884,	-	7,648	1,393,969	3,198,878	-	-	294,106	5,701	381,506	58,678	1,163,031	-	80	111,816	40,059	-	-
Decrease of 1885 below 1884,	21	-	-	-	-	-	-	-	-	-	-	-	-	16,957	-	27,698	-
Increase of 1886 over 1885,	-	-	-	-	-	-	33,420	2,005	711,778	-	-	4	-	1,214	-	50,164	456,507
Decrease of 1886 below 1885,	60	5,881	564,009	5,026,304	-	-	-	-	-	16,134	1,430,496	-	-	-	71,843	-	-
Increase of 1887 over 1886,	-	-	-	-	-	825,166	48,280	-	165,711	15,089	-	83	11,391	40,387	44,033	-	227,980
Decrease of 1887 below 1886,	12	174	75,099	-	-	-	-	2,103	-	-	338,285	-	-	-	-	8,801	-
Increase of 1888 over 1887,	152	129,908	642,287	5,823,861	1,438,526	-	-	1,442	473,363	111,433	2,743,828	2,377	174,452	18,542	-	9,437	2,556,781
Decrease of 1888 below 1887,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Increase of 1889 over 1888,	88	-	-	-	-	12,249,666	2,790,316	3,139	333,789	89,208	2,640,286	1,795	165,179	2,111	104,726	180,949	859,427
Decrease of 1889 below 1888,	-	108,739	150,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Increase of 1890 over 1889,	-	-	-	-	-	2,605,452	-	898	-	4,488	346,510	2,036	166,339	-	-	-	-
Decrease of 1890 below 1889,	61	11,168	579,009	14,437,039	-	-	-	-	979,109	-	-	-	-	46,243	87,064	118,794	908,673
Increase of 1891 over 1890,	-	-	-	-	1,915,992	5,626,625	-	-	-	53,754	1,701,947	-	-	7,165	175,320	-	-
Decrease of 1891 below 1890,	89	2,492	-	-	-	-	2,431,752	5,640	2,804,223	-	-	2,318	158,425	-	-	18,812	518,202
Increase of 1892 over 1891,	-	-	-	-	-	6,132,827	-	631	737,012	28,939	-	364	19,212	-	-	45,783	-
Decrease of 1892 below 1891,	9	20,418	1,774,809	4,373,252	-	-	-	-	-	-	-	-	-	-	-	-	-
Increase of 1893 over 1892,	42	1,546	975,653	2,519,220	4,150,776	-	-	1,711	207,376	235,942	-	2,034	7,827	10,971	72,792	297,805	22,426
Decrease of 1893 below 1892,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Increase of 1894 over 1893,	74	-	1,537,724	-	-	3,438,445	2,625,442	1,645	1,822,310	3,962	-	631	27,918	6,051	93,868	549,320	7,115,998
Decrease of 1894 below 1893,	-	5,790	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Increase of 1895 over 1894,	24,146	-	-	8,041,852	-	-	-	472	1,071,750	154,871	3,753,155	1,390	50,568	407,172	206,632	981,241	4,842,226
Decrease of 1895 below 1894,	44	-	2,887,706	-	-	320,708	-	-	-	-	-	-	-	-	-	-	-
Increase of 1896 over 1895,	42	-	1,823,516	-	-	5,892,844	-	966	2,198,980	122,978	1,230,688	37	29,411	338,539	-	761,119	-
Decrease of 1896 below 1895,	-	11,676	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Increase of 1897 over 1896,	-	-	-	958,810	-	-	-	7,055	1,135,981	4,694	-	-	12,301	8,254	211,411	-	9,257,971
Decrease of 1897 below 1896,	52	4,518	2,121,825	434,231	-	-	-	-	-	-	-	-	-	-	-	2,600,720	906,833
Increase of 1898 over 1897,	-	-	-	-	-	8,883,824	1,226,281	-	57,553	679,122	-	45	24,666	32,448	23,978	305,133	463,282
Decrease of 1898 below 1897,	60	13,366	421,534	-	-	-	-	6,305	1,118,820	-	-	-	-	-	-	-	-
Increase of 1899 over 1898,	-	-	-	-	-	3,403,147	-	-	-	-	1,236,428	-	-	21,791	-	892,410	-
Decrease of 1899 below 1898,	15	40,962	502,227	3,403,147	-	-	597,705	1,633	28,277	36,322	-	51	26,294	-	53,826	-	*2,122,317

* Sand eels and small mackerel—ordinarily termed "spikes"—are not included in these returns. The eels are used in large quantities for bait, and probably a considerable percentage of "spikes" are canned for food.



STATE HATCHERY, WINCHESTER.

REPORT OF THE COMMISSIONERS

ON

INLAND FISHERIES AND GAME

FOR THE

YEAR ENDING DECEMBER 31, 1900.

BOSTON :

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Commonwealth of Massachusetts.

To His Excellency the Governor and Honorable Council.

The Commissioners on Inland Fisheries and Game respectfully submit their thirty-fifth annual report.

FISH CULTURE.

Organization. — Coincident with the organization of the Board, after the appointment of the present chairman, in the fall of 1899, an attempt was made to arrange for conducting the fish cultural work upon a different basis from that which had prevailed for several years previously. Instead of having the hatchery at Sutton under the personal direction of one of the Board, and the other hatcheries under the general direction of the chairman of the Board, it was deemed preferable that all the fish cultural work should be placed under the supervision of the superintendent of hatcheries, who, of course, would be subject to the orders of the Board. This resulted in a centralized, responsible and well-directed effort to promote all the fish cultural interests of the commission, so that they have been harmonized and the work has been prosecuted with energy and success. The outcome has been so satisfactory, that, upon the recent reorganization of the Board, owing to the death of Mr. Buffington and the appointment of Mr. Delano, the commission has been unanimous in desiring that the work shall be conducted as it has been within the past year.

Appropriation. — The appropriation for fish cultural work during the present year, while not definite in amount, it being included with the general appropriation, except the sums for stocking ponds and brooks, was larger, perhaps, than was ever previously granted by the General Court for such a purpose, except when money was voted for the construction of hatcheries. This action was doubtless due to the recognition of the increasing importance of the work of stocking our inland waters, and

also to the nearly universal public demand for rearing a considerable percentage of the output of the hatcheries to the size of fingerlings and yearlings, before depositing the fish in ponds and streams.

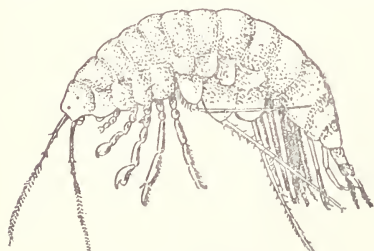
Output of Fish. — The output of trout fry, during the period covered by this report, was nearly equal to the highest point reached in any other year, as will be seen in the report of the superintendent of hatcheries, which is appended. In addition to this, a number of trout and all the landlocked salmon have been reared to fingerlings and yearlings, before being placed in the ponds and streams.

Through the courtesy of the United States Fish Commission, we were also able to plant a million fry of the pike perch in our ponds. Thus, in the aggregate, the output of young fish has been approximately double that of any previous year.

An Enemy to Trout. — The following statements, written by the chairman of the Board, are reproduced from "Forest and Stream," Oct. 27, 1900: —

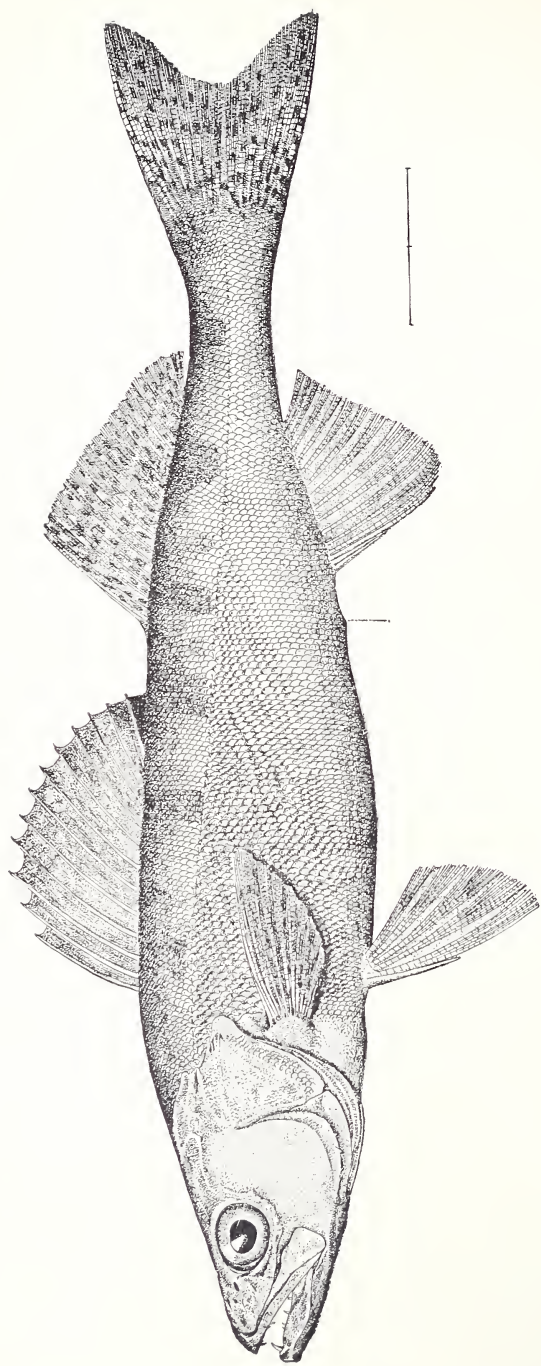
Among the interesting incidents of our fish cultural work this year is the supposed discovery of a new enemy to trout fry. This is a fresh-water form (*Gammarus fasciatus*), resembling in general appearance and size that common species of marine crustacean found along our sea beaches, and usually known as "sea flea" or "sand flea."

Last spring some trout fry were put into the waters controlled by the water commissioners of Newburyport, Mass. Not long thereafter, the secretary of the water board, Mr. Harry S. Noyes, informed me that the fry had been attacked by a small animal, which destroyed a considerable number of the young fish. I immediately wrote for specimens, which were promptly obtained. These were identified as *Gammarus fasciatus* by the scientists of the United States Fish Commission, who, however, were of the opinion that probably a mistake in observation



GAMMARUS FASCIATUS.
Enlarged about 5 diameters.

had been made, since it was not thought *G. fasciatus* would attack living fish, though it was deemed quite probable it would promptly devour fish which had died from any cause.



STIZOSTEDION VITREUM. Pike Perch or Wall-eyed Pike.

In order, therefore, to obtain fuller information on this interesting subject, I wrote to Mr. Noyes for details. In his reply he makes the following statements: "The only information I can give you in regard to the *Gammarus* comes from the engineer at the works, who spent some time watching the trout. He reported that if the fish remained motionless in the water the insects would attack them; the trout in most cases were able to dislodge them by rapid swimming, but not always. I think he saw them have three dead ones one day. At the present time the trout are doing finely, some being over three inches long, and they seem to be eating the *Gammarus*, as they are not nearly as numerous as they were."

If the observations of fish culturists in other States, or future studies, determine beyond question that trout fry are liable to be destroyed by *G. fasciatus*, and likewise that the latter is eagerly eaten by fingerling fish, then the advocates of artificially rearing trout to the size of fingerlings, before depositing them in brooks or ponds to look out for themselves, will have additional reason for their belief.

Introduction of New Species. — The commission has desired to introduce some species for stocking our ponds, which are believed to be well adapted to Massachusetts waters and to have other qualifications which will make them desirable accessions to our fish fauna. Two species were considered especially suitable for this purpose.

The first and most important of these is the pike perch (*Stizostedion vitreum*), which is the largest of the perch family found in American waters, it having a recorded maximum weight of forty pounds, though its usual size is about five or six pounds. This species is justly considered one of the best food fishes in the fresh waters of America, and also is valued for its game qualities. The following statements, in reference to the pike perch, are extracted from a "Manual of Fish Culture,"* recently issued by the United States Fish Commission: —

Throughout its range it is caught nearly the year round, and, in spite of the zeal with which it is pursued on account of its fine table qualities and the ease with which it is captured, it is holding its own well, owing to its hardiness, its comparative freedom from disease and the facility with which it is produced by fish cultural methods.

As a table article it ranks high. The smaller fish are delicious fried, broiled or boiled, while the larger ones, weighing from five to fifteen pounds, are excellent when baked. The flesh is firm and well flavored, even in the warmest weather.

The pike perch, although capricious, is readily caught with baited hook, artificial fly, spoon, etc., and deserves high rank as a game fish.

The species is prolific, 90,000 eggs being considered a fair average per fish for Lake Erie; and there is every probability that because of this it will be able to maintain itself in many of our deep ponds, and thus add materially, not only to the possibilities for angling, but to the annual yield of food from our interior waters. The effort to introduce this species in this Commonwealth, which has already been successfully begun, will be continued.

The commission also contemplated the introduction of the calico bass or strawberry bass (*Pomoxis sparoides*) early last spring, and arrangements were made for bringing fish from Lake Erie to put in some of the State ponds. The season had, however, advanced too far and the weather was too warm to carry out this purpose by the time the appropriation was available, and consequently it was necessary to defer action until some future time, when conditions may be more favorable. It is believed that this species will make a desirable addition to the fishery resources of our inland waters. "It is an excellent pan fish," remarks Goode, "reaching sometimes a weight of two pounds, although not generally weighing more than one pound. It is, like its relatives, gamy, but it is not so voracious as most of them." *

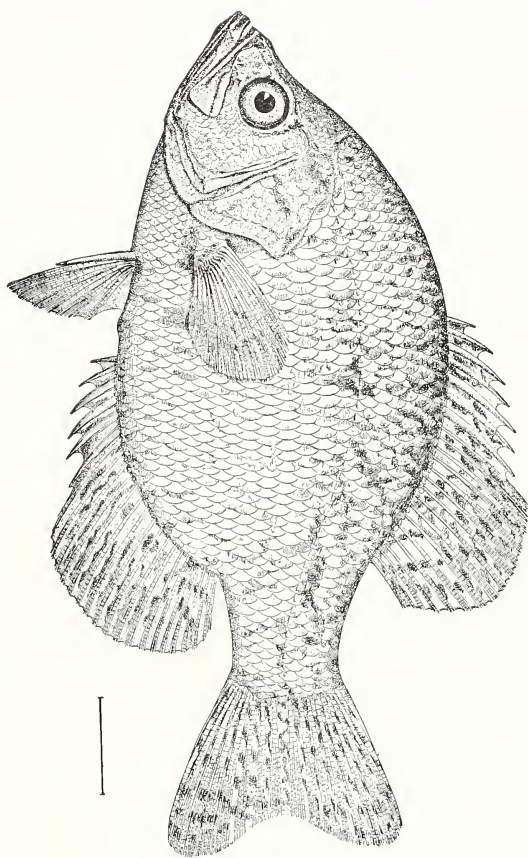
Professor Kirtland claims that it is "the fish for the million." He also testifies to its excellence as a food species, and adds: "For endurance and rapidity of increase it is unequalled." It is his opinion that "It will in nowise interfere with the cultivation of any number of species, large and small, in the same waters. It will live harmoniously with all others, and, while its structure and disposition restrain it from attacking any other but very small fry, its formidable armature of spinous rays in the dorsal and abdominal fins will guard it against attacks of even the voracious pike." †

Stocking Ponds. — Ten great ponds of the State have been

* "Fishery Industries of the United States," section 1, pages 406, 407.

† "American Sportsman," Feb. 28, 1874.

POMONIS SPAROIDES, *Catlo* Bass, Strawberry Bass.



stocked, and the fisheries therein regulated, under chapter 208, Acts of 1897. They are as follows: Quabbin Lake, Greenwich; Bridgman Pond, Belchertown; * Great Pond, Wellfleet; Massapoag Pond, Tyngsborough; † Turnpike and Witherell ponds, Wrentham; Cranberry Pond, Braintree; Chebacco Lake, Essex and Hamilton; Wequaguet Lake, Barnstable; and Henshaw Pond, Leicester.

The regulations applied were uniform, and prohibit "all fishing from the first day of November to the first day of June of each year for a term of three years." These ponds are, however, "open to fishing with single hook and handline on Monday, Wednesday and Saturday of each week, from the first day of June to the first day of November of each year for three years."

Restocking Ponds. — The results obtained by action similar to that above mentioned have been so satisfactory that there has been a general desire on the part of the public to have the conditions continued, if possible, after the expiration of the term for which the ponds have been "closed." Earnest appeals have been made to the commission to restock and reclose ponds that were first stocked in 1897; and the seeming lack of certainty in the public mind regarding the limitation of authority under the law made it necessary to secure an authoritative decision from the Attorney-General of the Commonwealth. The following extracts from the decision rendered Aug. 21, 1900, show conclusively that the commission, under existing law, has no authority to restock and reclose a pond in which the fishing has been "regulated" for three years, under chapter 208, Acts of 1897: —

The question submitted in your letter of July 28 is whether, when a great pond has been stocked and the fishing therein regulated for a period "not exceeding three years," under the statute last quoted, your Board may, after the expiration of such term, again stock and regulate the fishing in said pond under the provisions of said statute.

Clearly not. If the law could be so construed, the power of the commission to diminish public rights in great ponds might be indefinitely extended, both as to time and as to number. Such a construction is not to be favored, and was evidently not intended by the Legislature.

* Bridgman Pond, so called, is really a system of three ponds connected by brooks.

† This pond is in three towns, — Tyngsborough, Dunstable and Groton.

Stocking and closing Brooks.—Four brooks have been stocked with trout and the fishing therein regulated under chapter 284, Acts of 1900. These are as follows: the brook at Stock Company's Meadows (it being a part of the head waters of Ten-Mile River), in the town of Wrentham; and Spriggy Brook, White Brook and Red Brook, in the town of New Salem.*

The first of these brooks is closed to "all fishing for three years from the twenty-fifth day of July, 1900," with the exception that fishing, with single hook and handline, is permitted on Tuesday, Thursday and Saturday of each week, from the first day of April to the first day of September in the third year.

Practically the same regulations are applied to the New Salem brooks, dating, however, from Dec. 10, 1900.

It is believed that the result of the application of this law will be most beneficial in producing an abundance of fish life in the brooks which are stocked and closed, as above indicated.

Examination of Ponds.—It was the intention of the chairman of the commission to make a personal examination of a considerable number of great ponds of the State, in order to determine, in a general way, their adaptability to the maintenance of fish life, and that the data might be available for reaching reasonably correct conclusions as to the species best adapted to certain waters. The pressure of other matters, however, and particularly those relating to the examination of fishways, brooks and saw mills, made it impossible to extensively prosecute the inquiry relating to ponds. The latter work could be satisfactorily done during only about three months in mid-summer, when it was practicable to get the maximum temperature of the water. The following is a brief résumé of the most conspicuous conditions in the ponds examined:—

Wequaguet Lake, Barnstable: The principal species of fish in this lake—which is also known by the name of Great Pond—are yellow and white perch, pickerel, black bass and catfish, locally known as bullheads. The bottom is sandy or

* The brooks at New Salem were stocked and closed after the report of Mr. Delano was submitted, consequently he made no mention of them or the number of trout (1,000) put into them.

muddy, and is generally covered with a growth of aquatic grass. The greatest depth found was 25 feet. The temperature was fairly uniform at surface and bottom, being 65° F. at surface and 64° at bottom.

Follin's Pond, Yarmouth: This is a large, shallow pond, in which the tide ebbs and flows. The most important species of fish that frequent it are alewives and white perch, which migrate through it on their way to their spawning grounds. The bottom is sandy near the shore, but is more or less muddy in the deeper part of the pond. The depth, in the northern part of the pond, varies from 4 to 7 feet in the deepest sections. The lowest temperature at the bottom was 62° F., and the surface temperature was 67°.

Island Pond, Plymouth: This pond was visited, but no satisfactory examination could be made, owing to the fact that it lies off the regularly travelled route, and there was no boat available at the time for carrying out the investigation. It has a sandy bottom, and a surface temperature of 67° F.

Little Pond, Plymouth: The principal species of fish found in this pond are black bass, white and yellow perch, pickerel and catfish. Bass were apparently scarce in the pond, but it was stated that specimens weighing over three pounds had been taken the previous year. The bottom is sand and pebbles. Surface temperature, 66° F.; bottom temperature, 52° to 62°, according to depth. Depth varies, at some distance from the shore, from 27 to 42 feet. Among the ponds examined, this seems to be the one best adapted to land-locked salmon or pike perch, because of the temperature and character of the bottom.

Billington Sea, Plymouth: This is a large, shallow pond. The principal species of fish are pickerel, black bass, perch and catfish. The pond has a sandy and pebbly bottom, as a rule, though in some sections the bottom is chiefly cobble stones. The greatest depth found was 11½ feet. So far as observed, there was little or no vegetable growth on the bottom near the shores. The bottom temperature was 62° to 63° F.

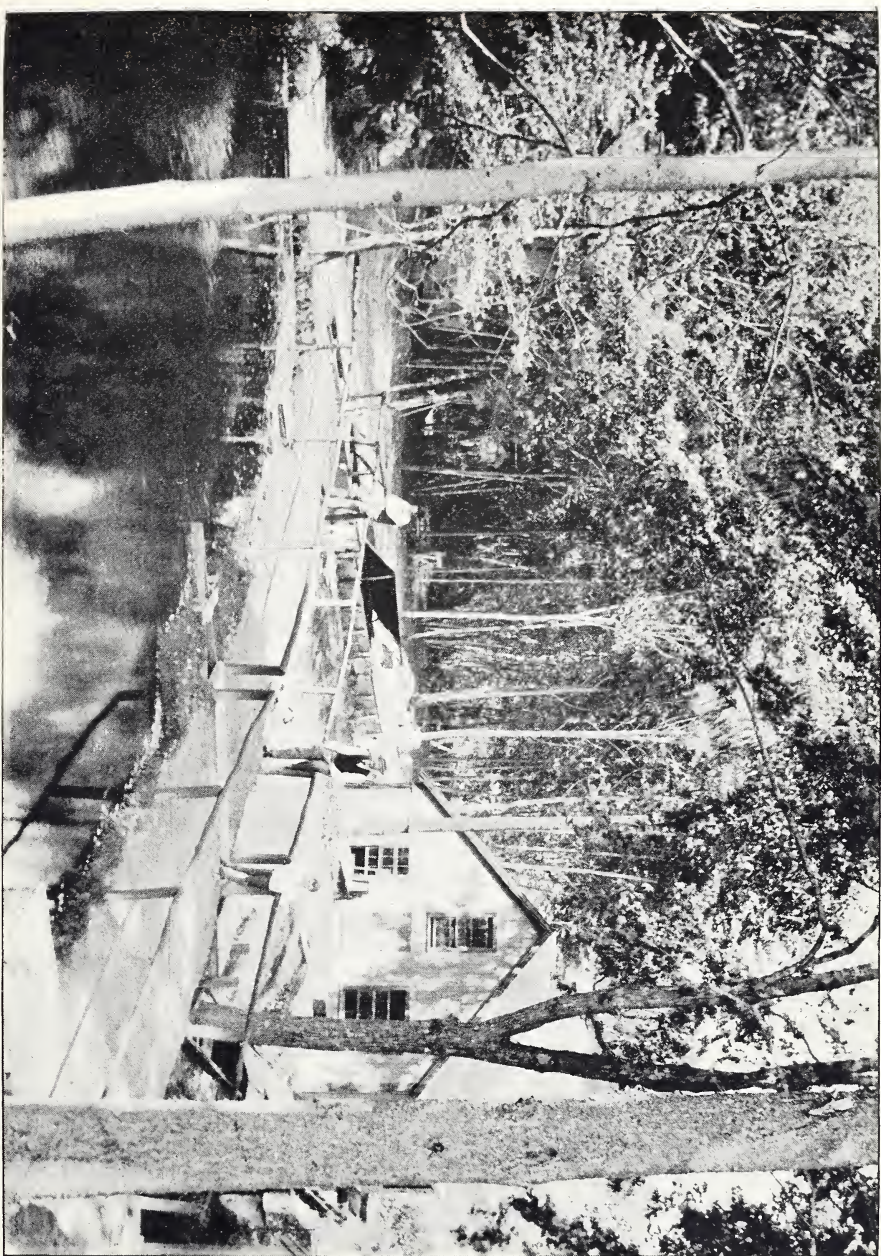
Chebacco Pond, towns of Essex and Hamilton: The principal species of fish in this pond are black bass, white and yellow perch, pickerel and catfish. The alewife enters it in spring to spawn. The temperature at the surface was 68° F.,

and, at a depth of 18 to 20 feet, 63°. The depth at a little distance from the shore ranged generally from 8 to 22 feet, with a bottom of sand, gravel and mud.

Bridgman Pond, Belchertown: Three ponds, which are connected by small streams, are known as Bridgman Pond. The so-called lower pond is the largest, and that designated as the upper pond is the smallest and deepest. The principal species of fish in these ponds are the yellow perch, pickerel and catfish, although the last two are reputed to be scarce. The temperature in the lower pond, in early September, was 82° to 84° F. at the surface and 80° at the bottom. The pond is generally shallow, with lily pads near the shore, and a depth varying from 10 to 18 feet at some distance from the beach. The bottom is hard, being mostly gravel, pebbles and stones. The middle pond has a nearly uniform depth, through the centre, of 12 to 13 feet, except on a shallow spot near the middle, where the depth does not exceed 3 or 4 feet. The character of the bottom, species of fish and temperature are substantially the same as in the lower pond. The upper pond is only about 11 acres in size, and, as stated, is tributary to the other ponds. The species of fish and character of the bottom are substantially the same in this as in the other ponds, although the depth is much greater, ranging from 20 to 35 feet, through the centre. The surface temperature was 82° F., and the temperature at a depth of 20 feet was 80°.

Work at Hatcheries. — The work embraced under this head has been prosecuted on a larger scale than heretofore, due partially to the employment of a skilled fish culturist at the Hadley hatchery, and also to the fact that funds have been available for extending the plants, building fish pens, ponds, etc., to make possible the rearing of fry to the size of fingerlings and yearlings, before depositing them in public waters.

Rearing Young Fish. — For various reasons it has not hitherto been deemed expedient by this commission to undertake the rearing of young fish to the size of fingerlings or yearlings. This year, however, the experiment was successfully tried, notwithstanding the fact that at the beginning of the season the main stations at Sutton and Hadley lacked the equipment of ponds, rearing pens, etc., which is essentially necessary to the prosecution of such work. The report of Mr.



STATE HATCHERY, SUTTON, MASS.

Delano embraces details of results which it seems unnecessary to repeat here.

Building Ponds, etc. — Among the important preparatory steps necessary for the rearing of young fish is the building of ponds, or the preparation of pens, on a sufficiently large scale to accommodate fry, and permit them to grow under conditions which will insure healthy development.

In accordance with the determination to make such provision, several small ponds or pens were built below the dam at Hadley, and it was hoped and expected that the water supply which might be obtained would be suitable and sufficient to render these available for raising trout or land-locked salmon. This expectation, however, was doomed to disappointment, although in the future the pens may be used successfully for other species. The question of securing an adequate supply of water at Hadley, of a suitable temperature, was for some time a serious problem, and to solve it both careful consideration and hard work were necessary. In furtherance of this, an agreement was concluded with Messrs. T. Dwight Morton and Edward C. Morton for the lease of a brook, and the land through which it passes, for ten years, at an annual rental of twenty-five dollars, with the proviso that the land may be purchased for one hundred and twenty-five dollars at any time within the term for which the lease is drawn, if the commission deems it desirable that the State should acquire the property. The temperature of this brook is at all times suitable for trout, and it was easily deflected from its original course so as to supply some small ponds that were constructed, and which were located so as to be free from the influence of freshets. After the construction of the pond or ponds it was found that the supply of water of a desirable temperature could be materially enhanced through driving wells, which was done. Much work was also accomplished by the superintendent at Hadley in sinking wells to secure a larger and more certain supply of water for the hatchery. What has been done there in the directions mentioned seems to insure, beyond question or doubt, gratifying results in the matter of breeding and rearing trout, and there is consequently reason for anticipating success in these directions, which, at best, could only be hoped for until now.

Additions have been made to the pond system at the Sutton

hatchery. The pens there, which had gone into decay and were, therefore, worthless, have also been repaired, and plans have been made to utilize to the fullest extent the fish cultural resources of the station.

The introduction of the so-called "tub system," at Sutton, during the present year, has proved to be one of the most important events in the history of the commission, so far as rearing young fish is concerned. This system consists simply of having a number of tubs (made by sawing molasses hogs-heads in two) so placed that a stream of water which flows into the upper one can be carried into the others by natural gravitation. The tubs are grouped close together near the water supply, and for that reason, as well as for the reason that the fish are confined within a limited area, which can easily be kept clean, there is less danger of loss than by almost any other system for rearing fish known of. This may be in part due to the fact that it is easy to cover the tubs with fine-mesh netting, and thereby keep out enemies which otherwise might prey upon the fish, and it is also easy to remove any fish which may die, and thus prevent possible pollution of the water. The use of tubs at Sutton has been attended with the highest success, and it is proposed to employ the same system at Hadley in the coming year.

Brood Fish. — The success of fish culture depends in a large measure upon the magnitude of its operations. In other words, if it is prosecuted upon an extensive scale, the result will be more apparent and more satisfactory to the public than if it is carried on upon such a limited basis that its effects cannot be so readily appreciated. For this reason it has been deemed advisable to largely increase the brood stock of fish at the two main hatcheries in Hadley and Sutton. Consequently, some yearling fish have been kept over, which have begun to yield eggs this fall, and it is proposed to reserve a sufficient number of the fingerlings, now available, to furnish, when they are grown, all the eggs which it is believed the hatcheries can accommodate. In this way it is hoped to increase the output of the State hatcheries to such an extent that the cost of production of young fish will compare favorably with the best results obtained in other States or by private fish culturists in this.

Pike Perch. — In developing the plan for stocking State

ponds with pike perch, provision has been made so far, at least, as the purchase of jars is concerned, for hatching the eggs of this species at Sutton and Hadley. While it is known that difficulties attend the incubation of pike perch eggs, it is, nevertheless, considered best to attempt hatching them at our own stations, from which the fry can be readily distributed, than to depend upon getting fry from a distance, at a season when the temperature may be high enough to affect the vitality of the fish, on a trip from a more or less distant point. Besides, it will doubtless be easier to obtain the eggs than to secure the fry. Present plans contemplate the installation of a plant, which may be available for hatching the pike perch, as soon as the eggs of that species may be obtained, which will be about the close of the trout hatching season.

The Carp. — The introduction of the carp in certain waters, not perhaps suitable for the successful rearing of game fish, is a matter that was dwelt upon at considerable length in the last report of this commission, and it is only necessary to add that recent statements by competent authority emphasize the importance of this species, considered from a commercial standpoint, and the remarkable position it has attained in the waters of the middle west. The figures recently presented indicate more forcibly than anything heretofore published the conspicuous position held by the carp as a source of food supply, and the increasing demand for it in the markets of this country.

In the Middlesex Fells, at Winchester, a pond has been assigned to this commission for the rearing of carp, so that a supply may be available for distribution to citizens who may desire to obtain this species. While this involves little care or expense, this supply of carp, thus made available to the public, must justly be considered no insignificant part of the fish cultural work of the State.

REPORT OF SUPERINTENDENT OF HATCHERIES.

MARION, Nov. 24, 1900.

Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have the honor to submit my annual report as superintendent of hatcheries.

The Board deeming it advisable to attempt to stock the waters of the Commonwealth, in part at least, with trout larger than fry,

I was instructed to make the necessary changes at both Sutton and Hadley for growing fingerlings and yearling fish as soon as possible after the appropriation was available.

New ponds were built, and a system of tubs was adopted at Sutton for rearing young fish, and we now have at that station about 40,000 fingerlings, 8,000 of which will be retained to increase our brood stock, and the balance will be distributed in different sections of the State within a short time.

Arrangements were also made at Hadley for rearing a limited number of young trout; but, owing to the high temperature of the water, the results were far from satisfactory. Efforts were made to obtain flowing wells to supply water of a suitable temperature to a series of pools below the dam, but about 30 feet down hard pan was struck that could only be penetrated by a steam drill, and the work was abandoned; later, careful tests were made above the dam, and flowing wells were obtained with a temperature of water at 52° F.

More wells will be driven this winter, and, with the new ponds built at both stations during the year, I see no reason why we will not be in a position next year to attempt the rearing of at least one quarter of a million fry.

In addition to the 40,000 fingerlings now on hand for distribution, I have since my last annual report planted in Lake Quinsigamond 8,000 land-locked salmon fingerlings and yearlings.

One hundred and twenty-two applicants were supplied with 850,000 trout fry from the hatcheries at Sutton, Hadley, Adams and Winchester. One million pike perch fry, obtained from the United States Fish Commission, were planted in Humphreys and Mystic ponds, in the towns of Lynnfield and Winchester; and, in accordance with chapters 208 and 284 of the Acts of 1897 and 1900, 1,000 yearling trout and 4,000 adult white perch have been distributed in the several ponds and streams of the Commonwealth, as will be seen in the list of distributions of fish.

Our adult fish at Sutton and Hadley are in fine condition, and but very few have died during the year. The work of taking eggs was begun the last of October, and up to the present time we have taken about 700,000, and without a doubt the total obtained from our own fish this season will exceed 1,000,000 — a large gain over any previous year.

The system adopted at Sutton for rearing fish in tubs has been thoroughly tested this year. I am satisfied that, for the same amount of water and space, more fry can be grown with safety and with less loss than in any other way, and I would suggest that the same method be adopted at Hadley next year.

In addition to the fish cultural work carried on at Sutton, arrange-

ments were made this year to breed the Mongolian pheasant; and the results have been so favorable that I am now having the capacity of the breeding pens doubled, and hope to liberate next season several hundred birds.

Respectfully submitted,

JOHN W. DELANO,
Superintendent.

Work of the United States Fish Commission. — The fish cultural work carried on at the coast stations, at Gloucester and Wood's Hole, by the United States Fish Commission, is of too much importance to the fishing industries of this Commonwealth not to receive notice in this report. This will be apparent when it is stated that during the fiscal year ending June 30, 1900, 265,324,000 cod fry and 87,115,000 flat fish fry were deposited in the coast waters of this State, while in the current calendar year 37,181,000 lobster fry were also put out in our littoral waters. This makes a grand total of nearly 400,000,000 fry of our most important sea species, added to the natural production of fish and crustacea — a work of such magnitude that it should exert a material influence on maintaining or increasing the supply of these species.

Fishways. — The maintenance of fishways for the passage of anadromous or semi-migratory fish is a matter of much moment for the continuance of these species in reasonable abundance, and is one closely associated with fish culture. Strenuous efforts have been made to secure the building and repair of fishways.

The new fishway at Middleborough was found upon examination to be inadequate for the successful passage of alewives. To insure the passage of fish through this fishway, it was necessary to have it extended about 20 feet. There seemed to be no way of accomplishing this except through the voluntary act of Mr. Charles N. Simmons of Dighton, who is largely interested in the fishery on Taunton Great River. In the interest of the preservation of the alewife, he undertook the work of extending this fishway at his own expense, under the authorization of this Board, and it is now presumed it will no longer be difficult for fish to pass over the Middleborough dam.

Another fishway, at the dam lower down on Taunton Great River, and controlled by the New England Cotton Yarn Com-

pany, was much out of repair, and therefore more or less unsuitable for the purpose for which it was constructed. When the attention of the company was invited to the existing condition, however, it very cheerfully undertook to place the fishway in proper repair.

Fishways on the Saugus River, which were badly out of repair, were put in satisfactory condition upon representations being made by this commission to the proper parties.

Orders to build fishways have also been sent to the owners of the dam at Weir Bridge, near Follin's Pond, in Yarmouth; to various owners of cranberry bogs bordering on Santuit River, in the town of Barnstable, where small fishways were needed; and to W. W. Wood, in Orange. In all cases the fishways thus ordered have either been built or their early construction is contemplated. It is pertinent to state, in this connection, that the orders so issued were based upon examinations by the Board.

Considerable work of this character may remain to be done, which, for various reasons, can only be satisfactorily accomplished under the new law (chapter 344, Acts of 1900) relative to the building of fishways, whenever an appropriation is available to carry out the provisions of this act.

Prevention of Stream Pollution. — The most serious question that confronts the fish culturist in this State, and threatens sooner or later to render abortive efforts at properly restocking its inland waters, is the pollution resulting from various manufacturing enterprises. Many of the most important streams of this Commonwealth, and not a few of the ponds, have been polluted by acids, sawdust, etc., to such an extent as to make it almost or entirely impossible to maintain fish life therein. This follows almost as a matter of course in a manufacturing State like Massachusetts, unless there is restrictive legislation which prohibits the discharge of poisonous substances into waters which often serve as the most available sewers for large plants, and especially for those that are water-driven. There is a temptation to elaborate on this subject, but the limitations of this report preclude a possibility of doing more than to make a bare reference to it.

At present there is only one special law on the statute books (chapter 129, Acts of 1890) which in any way limits inland

water pollution for the preservation of fish. This relates to the discharge of sawdust from saw mills into streams.

The question of keeping trout brooks free from pollution, so far as possible, is one of such importance that the Board has undertaken, during the current year, to enforce this law as fully as possible. In furtherance of this object, and in order that the Board might be in a position to act intelligently, the chairman has personally visited a large number of mills, and examined not only the mills but the brooks upon which they were situated. Competent deputies have also been sent to make examinations. Finally, orders have been issued to stop the discharge of sawdust into streams in every case where this was deemed actually necessary. The enforcement of a few of these orders has, however, been suspended temporarily, pending the time when it is practicable for the mills and streams to be visited by one or more members of the commission, since it is the purpose of the Board not to act inadvisedly or in a manner which may subject mill owners to conditions not fully warranted by the law, and the necessity for preserving the trout streams from a form of pollution that has either depleted them of fish life or threatens that result.

Fishing Rights in Cape Pond, etc. — The following correspondence, relative to Cape Pond and Alewife Brook, embodying as it does the decision of the Attorney-General of the Commonwealth, is interesting at this time, when there seems to be more or less uncertainty regarding the rights of the public in ponds that have been assigned by act of the General Court to towns or cities for the purpose of supplying them with water : —

Boston, July 28, 1900.

Hon. HOSEA M. KNOWLTON, *Attorney-General of the Commonwealth, State House, Boston, Mass.*

DEAR SIR : — I have the honor to inform you that, as a result of official action of the city government of Gloucester, this Board has had considerable correspondence with the mayor and clerk of that city concerning the passage of alewives through Alewife Brook, so called (for the most part situated in Gloucester), to and into Cape Pond, so called, in the town of Rockport, which under an act (chapter 79, Acts of 1894) entitled “ An act to supply the town of Rockport with water,” was placed under the control of a corporation for the purposes indicated in the title.

This Board has also been in correspondence with said corporation, or so-called water board of Rockport, and I have had conferences with that board and with various gentlemen of the Gloucester city government relative to the passage of alewives into Cape Pond for the purpose of spawning. I have also made a personal examination of Cape Pond and Alewife Brook, and have observed the obstruction placed by the Rockport water board at the source of the brook to prevent alewives from entering the pond in spring for reproductive purposes.

The object of the conferences, examinations, etc., was, if practicable, to bring about an amicable arrangement between the city of Gloucester and the Rockport water board, so called, regarding the entrance of alewives into Cape Pond for the purpose mentioned, and thus to obviate the necessity for troubling you with the matter, as I am now compelled to do, owing to the failure to obtain results through the means adopted.

It appears that, from the earliest settlement of New England, Alewife Brook has been an important stream for the passage of the alewives from the sea to Cape Pond, which is a natural spawning ground for this species. The brook has been noted for the abundance of alewives in it during the migratory period, hence its name.

Recently, however, the Rockport water board has put a galvanized-wire screen across Alewife Brook, where the brook leaves Cape Pond, for the purpose of preventing fish from entering the pond from the brook, and as long as this screen is in place it is impracticable for alewives to reach their breeding ground in the pond. It is safe to assert that, if this is continued, the alewife will soon disappear entirely from the waters referred to, because of the impossibility of reproduction under prevailing conditions.

The citizens of Gloucester, being, as you know, largely interested in commercial fishing, and appreciating the importance of the alewife as a source of bait supply as well as for other purposes, are anxious that no obstruction should be placed in Alewife Brook which may prevent migratory fish from entering or leaving Cape Pond, and have appealed to this commission to ascertain if anything can be done in the premises to secure a free passage for the fish.

Because of the foregoing facts, I beg to submit the following inquiries for your consideration, and to ask for your decision, feeling that whatever you decide upon will not only command the respect due the highest legal authority of the Commonwealth, but that nothing else will be conclusive and satisfactory to the parties concerned:—

1. In placing Cape Pond under the control of the corporation referred to in the act cited, for the purpose of supplying the town of

Rockport with water, to what extent, if any, did the State vacate its fishing rights — constitutional or otherwise — in this pond, which is a so-called great pond of the State?

2. To what extent, if any, can the aforesaid corporation control fishing in Cape Pond?

3. Has the aforesaid corporation the legal power to screen Alewife Brook in the manner described, or in that or any other manner to obstruct the free passage of migratory fish into the pond for the purpose of spawning, or their return to the sea after the act of reproduction, or the descent to the sea, through said Alewife Brook, of the progeny or fry of said migratory fish?

4. Can the State, or the city of Gloucester under the authority of the State, legally take any action to facilitate the entrance of migratory fish into Cape Pond or their return therefrom, and to protect them during their migration?

Hoping you may be able, in the near future, to render a decision regarding this matter, and thanking you in advance for your courteous consideration of the questions presented, or any additional information you may be kind enough to furnish,

I am, yours respectfully,

J. W. COLLINS,

Chairman.

Boston, Dec. 6, 1900.

JOSEPH W. COLLINS, Esq., *Chairman, Department of Fisheries and Game.*

DEAR SIR: — Your letter of July 28 states that a conflict of jurisdiction has arisen between the water commissioners of Rockport and your Board as to the right of your Board to maintain fishways for the entrance of alewives into Cape Pond.

St. 1894, c. 78, authorized the town of Rockport to take and hold the waters of Cape Pond, so called, and the water rights and water sources connected therewith, and all lands, rights of way and easements necessary for holding and preserving such water and for conveying the same to any part of the town of Rockport. Acting under this statute, the town took Cape Pond and now holds it.

I understand from your letter that the Pond is and for time immemorial has been a pond resorted to by alewives during the spawning season, which enters through a stream called Alewife Brook. Your letter further states that recently the source of the brook has been obstructed by a wire screen, which prevents alewives from entering the pond during their spring migration from the sea, the result being the destruction of the fishery in the brook and in the pond. The obstruction was placed by officers of the town.

It is well settled that the statute authorizing the town to take Cape Pond does not take away any public rights in said pond, excepting so

far as they are necessarily lost in the exercise of the right conferred upon the town to use the waters of the pond as a source of water supply. The right of fishing remains unimpaired, as well as all other public rights, subject to the limitations I have stated. (*Rockport v. Webster*, 174 Mass. 385.)

It follows that the town has no right to obstruct the passage of fish unless it can show that the waters of the pond are thereby rendered unsuitable for drinking purposes. The burden of showing this fact is upon the town, and, in the absence of any proof to that effect, the passage of fish into the pond may not lawfully be obstructed.

Inasmuch as the rights of all parties are derived from the General Court, I beg to suggest that, if it is found impossible to obtain an amicable adjustment of the question, the Legislature should be called upon to take such action as may be deemed necessary to secure the rights of the public, as well as the rights of the town.

Very truly yours,

HOSEA M. KNOWLTON,

Attorney-General.

Tisbury Pond leased.—In March, 1900, Tisbury Great Pond, so called, was leased to Allan Look *et als.* for a term of ten years, with the proviso that the public can fish therein with single hook and handline.

FISHERIES.

Importance of Commercial Fisheries.—From the earliest settlement of North America Massachusetts has occupied a premier position in the prosecution of sea and coast fisheries. Without dwelling upon the historic past, full of interest though it may be, it is doubtless safe to say that the present position of this Commonwealth among the New England States is as pre-eminent as it has ever been, and possibly more noteworthy than ever before.

This State has invested in the fisheries more than two-thirds the capital devoted to these branches of industry in New England, while the amount and value of its deep-sea products bear about the same proportions, although Maine exceeds it in clams and lobsters and Rhode Island and Connecticut in oysters.

According to statistics for 1898, furnished by the United States Fish Commission, Massachusetts then employed 14,363 persons in its fisheries, of whom 6,962 were on fishing vessels, 14 were on transporting vessels, 3,365 were shore or boat fisher-

men and 4,022 were shoresmen, employed in the various duties associated with curing, manufacturing and packing fish products.

The fishing fleet consisted of 629 vessels with an aggregate of 30,494 tons, and valued, with outfit, at \$2,712,394. In addition, the apparatus used in the vessel fisheries was valued at \$337,082. Eight vessels, with a total of 64 tons, and value, including outfits, of \$3,703, were engaged in transporting. Boats numbering 2,625 and valued at \$178,082 found employment in fishing. This floating property, together with apparatus used in the shore fisheries, the shore and accessory property and cash capital, aggregated a total of \$13,372,902 invested in the prosecution of the State fisheries.

The products of the vessel fisheries reached a total of 173,-852,873 pounds, worth, at first hands, \$3,528,985; and the shore fisheries produced 28,404,944 pounds, with a value of \$934,742. The grand totals are 202,257,817 pounds; value, \$4,463,727.

These are the latest available figures, and, though they may be subject to slight changes in the final report of the commission, they serve well to show the importance of our commercial fisheries. It is pertinent to state, however, that, chiefly owing to abundance of the mackerel during the season of 1900 and the prevalence of good prices for various kinds of sea or coast species, the present year will doubtless show a marked improvement in financial results, as compared with 1898, when mackerel were exceptionally scarce.

Shore Weir and Net Fisheries. — Considered as a whole, the weir and net fisheries have been less successful the current year than would have been the case if the mackerel, which has been unusually abundant some distance off shore, had entered the bays, as it ordinarily does. Indeed, the amount of mackerel shown in the tabulated statements would be much smaller except for a large catch in the autumn of 1899, after the returns had been submitted, and which are included in the figures for this year.

Various reasons are assigned for the absence, more or less pronounced, of the mackerel from inshore waters; but the prevailing opinion seems to be that it was mainly due to the presence of great numbers of large predaceous species in the bays, — notably Cape Cod Bay, — among which the sque-

teague occupies a prominent place, not because it is more destructive than some other fishes, but because it was more plentiful, perhaps, than other equally voracious species.

The returns show a decrease of about 32 per cent. in the numbers of mackerel taken by weirs and gill nets for the year ending Oct. 20, 1900. As already indicated, the falling off for the current season is much larger than shown by these figures, and doubtless the catch in 1900 was not more than half that of the preceding year, if so much.

Capt. Atkins Hughes says the greater part of the mackerel catch this year was composed of "spikes"—very small fish—and the weight was much less than the numbers might indicate.

The catch of bluefish by the various forms of nets and traps is about 37 per cent. in excess of that for 1899; but reports received from other sources of the occurrence of this species in coast waters, and its capture with hook and line, would seem to suggest a greater abundance than these figures indicate.

The catch of sea herring has been nearly 2,000,000 less than in 1899; so far as the bait supply is concerned, however, the decline in the yield of herring is partially made up by an increase of more than 500,000 alewives, about 225,000 squid and more than 144,000 menhaden.

The yield of shad, always more or less fluctuating and never of marked importance since 1888, has been less than one-third of that for 1899.

The returns indicate a larger catch of striped bass than for any year since 1897, and about nine times as many as were taken the previous year. This is most gratifying, since it shows that the numbers of a species most highly valued for its food and game qualities are being well maintained.

The catch of scup this year has not been exceeded, except in two seasons, since 1881. The increase over 1899 was nearly 100 per cent.—a result that partially compensated for the decline in the mackerel catch.

There were fewer tautog taken than for many years, the catch reported being less than one-third what it was in 1899, and much less than any recorded by this commission.

The decline in flounders and flat fish exceeded 40 per cent. of last year's catch, while the yield of other edible or bait fish

fell off about 12 per cent. from the previous year.* On the whole, however, the total numbers taken do not vary so greatly from 1899 as the marked absence of the mackerel might lead one to suppose.

An effort has been made this year to ascertain the quantity and value of fish taken by the weirs and gill nets, the catch of which is reported to this commission. Owing to the fact that the fishermen are not compelled, by law, to send in statements of the amount (in pounds) and value of the catch, and probably because all of them do not appreciate how important it is to themselves that the State should be well informed concerning these phases of their industry, some failed to make returns. It is gratifying, however, that sufficient carefully prepared statements were received to furnish a safe basis for estimating the remainder.

The estimates show that a total of 16,745,600 pounds of fish were taken, worth, at first hands, \$251,284. This result, though important in itself, gains additional significance when the relation of these coast fisheries to the deep-sea fisheries is understood, so far as bait supply is concerned; and also because the food product taken can be and is placed on the market, even in distant cities, in the best condition possible, due to the contiguity of fishing grounds to railroad stations and steamer landings.

The Lobster Fishery. — For many important reasons the industry dependent upon the continuance of a reasonable abundance of lobsters in the waters of this Commonwealth deserves the careful and intelligent consideration of all who are concerned in the welfare of our coast fishermen, and who are likewise interested in the preservation of a sea species which is fast becoming a luxury, and is threatened with decimation to a degree that will practically remove it from the list of commercial products in the not distant future.

Much has been done in the past, through legislation and artificial propagation, to at least delay a result that cannot be contemplated with complacency. The following reports, from the superintendents of the United States Fish Commission stations

* A large percentage of the fish included under the head of "other edible or bait fish" were large sea pollock, consequently the average weight of numbers given was larger than usual.

on the coast of this State, will show what has been done this year in artificially breeding lobsters, and will also indicate that this important work of the national government has already begun to suffer through difficulties experienced in collecting egg-bearing lobsters, the numbers of which must necessarily decrease if there is a general decadence in the abundance of the species : —

WOOD'S HOLE, MASS., Nov. 8, 1900.

Capt. J. W. COLLINS, *Chairman, Board of Commissioners on Fisheries and Game.*

DEAR SIR : — In accordance with the usual custom, I beg to submit the following report of the work done in the propagation of lobsters at this station the past season.

Notwithstanding the fact that every effort was made to push this work, the result was very discouraging. The season opened in April, the first eggs being taken April 20, and closed June 26. Arrangements were made for collecting eggs from the fishermen at Plymouth and Scituate, and also from those fishing in Buzzard's Bay and Vineyard Sound. At the opening of the season the prospect for making large collections from either of the above localities was not at all encouraging, still, it was hoped that the work as a whole would compare favorably with the previous season.

In Buzzard's Bay about 20 men from New Bedford set pots about the middle of April; but, owing to the scarcity of lobsters, they gradually left this fishery to engage in other branches. To illustrate the decline in our receipts from this point, I will say that last year we received 347 egg lobsters, while this year we got only 26. Last year we received 11,760,000 eggs from Buzzard's Bay and the territory in the immediate vicinity of Wood's Hole, while this year our receipts from the same territory were only 7,199,000 eggs. In all we received 812 egg lobsters from the waters of this State. These yielded 12,374,000 eggs and these in turn produced 10,821,000 fry. These fry were planted in Vineyard Sound and Buzzard's Bay, as well as at points north of Cape Cod.

Collections were also made from Rhode Island and Connecticut waters, the total number of eggs handled at the station being 28,142,000, and the total number of fry planted 22,463,000.

In view of the rapid decline of the lobster fishery, as shown by our work the past few years, I would earnestly recommend that such legislation be enacted as will protect the fishery and help to restore it to its former standing.

Yours very truly,

E. F. LOCKE,
Superintendent.

GLOUCESTER, MASS., NOV. 20, 1900.

Hon. J. W. COLLINS, *Chairman, Board of Commissioners on Fish and Game.*

DEAR SIR: — I submit herewith a summary of the lobster hatching operations at Gloucester, Mass., station during the season of 1900.

The season began early in April and extended to July 21, when the last fry were hatched. The first eggs were received April 9, and collections were continued in Massachusetts till July 10, the ground covered extending from Rockport to Cohasset, Mass.

During the season 2,016 egg lobsters were received from the waters of this State, which yielded 27,857,000 eggs. From these eggs were hatched 25,628,000 lobster fry, which were distributed at various points along the Massachusetts coast from Rockport to Cohasset. In addition to the above fry, there were also distributed in these waters 732,000 lobster fry, obtained from eggs collected outside the State, making a total of 26,360,000 fry planted in Massachusetts waters.

Collections were also made in Maine and New Hampshire waters, the total number of eggs handled at this station for the season being 63,700,000, and the total fry hatched 58,560,000.

Very respectfully,

C. G. CORLISS,
Superintendent.

Among the deductions to be drawn from the above reports are the following: —

There has been a decrease since last year of nearly 20 per cent. in the egg-bearing lobsters it was possible to obtain, which is a rather startling result, having in mind the fact that the utmost effort was made to secure breeding lobsters. It is at least an interesting question to consider how long it will be at this rate before the numbers of egg-bearing lobsters will be so much reduced that there will practically be no available supply to draw from for artificial propagation, while natural reproduction will be in a condition which can have only a feeble influence upon the continuance of the species.

This is all the more apparent when it is seen that the average number of eggs borne by the female lobsters obtained this year was only 13,872, which was a larger individual yield than the figures for 1899 would seem to show, and therefore a full average for recent years. Inasmuch as the lobster spawns only once in two years, at the most, it will be noticed that its reproductive powers are limited at the present time, when a large

lobster is rarely caught, and the tendency is toward a decrease in size and consequent decline in productiveness.

Mr. Locke's report shows that the greatest falling off, both in the catch of lobsters and gravid females, was in Buzzard's Bay, where the fishermen are reputed to be addicted to the capture of immature lobsters, which are carried to Rhode Island and shipped thence to New York.

The lesson taught by this is too obvious to need expression in words, and clearly indicates what may be anticipated all along the coast, unless measures are taken that are adequate to protect the lobster from continuous decimation, and especially to prevent the capture and sale of immature lobsters. For, notwithstanding much that has been said to the contrary, all reliable and unbiassed observers agree that only a few lobsters attain maturity before they are ten and one-half inches long, and that some are not mature until they are larger than that. Prof. Francis H. Herrick found 6 out of 17 immature females that were ten and one-half inches long, and he reached the conclusion that "their ovaries in most cases would not have matured for at least two years." Mr. Locke, writing under date of May 24, 1900, states that, out of 289 egg-bearing lobsters that were measured, he found only 69 under ten and one-half inches in length, "and only 3 were nine inches and under." Mr. Corliss found that about 3 per cent. of the egg lobsters obtained at the Gloucester station, in 1899, were less than ten and one-half inches long, and there were not exceeding 15 or 20 individuals less than nine inches out of a total of 6,300.

In an article entitled "The Cardinal Crustacean," Mr. W. S. March, the foremost fish culturist of Newfoundland, expresses the opinion that it "is nothing short of a crime and a piece of monumental ignorance" to destroy lobsters before they attain maturity, and he laments that the legal limitation of ten and one-half inches, which he considers a "far-sighted, prudent restriction," had been rescinded by his government.

This is substantially in accord with the deductions given by Professor Herrick in his monograph on "The American Lobster," which is the most important scientific work on this species yet issued.* Indeed, there is evidence sufficient to show the result of non-protection of the lobster in waters

* Bulletin United States Fish Commission, vol. xv.

contiguous to our own. As is well known, Rhode Island has a nine-inch law, and this is so manifestly inadequate as a protective measure that little or no attempt has been made to enforce it.

In the annual report of the Rhode Island Commissioners on Inland Fisheries, submitted to the General Assembly at its January session, 1899, the following statement, relating to the condition of the lobster industry in that State was made: "That the lobster industry of Rhode Island is rapidly waning needs no argument. The incessant unrestricted capture of the adults and young, the annual destruction of many millions of eggs by indifferent fishermen, and the inroads made upon the native supply by those not inhabitants of the State, have so reduced the annual catch that the industry is no longer profitable, and the lobsters themselves are sold at prices that make them prohibitive to many as a regular article of food."

In the succeeding report of the Rhode Island Commission, submitted in January, 1900, the following statements were made: "The predictions that have been so often made in regard to the disastrous results that must follow the unrestricted capture of immature lobsters and the destruction of egg-bearing females are being realized. Means more efficient for the annihilation of the lobster could scarcely be devised than those now employed. It is legal to capture and kill at all times of the year, and the animals are destroyed illegally, without respect to size or sex. The spawn of the few egg-bearing lobsters which approach our shores from the deeper water is combed from the appendages, destroyed, and the sterile mother carried to the market."

Attention has been directed to conditions in a neighboring State, in order that there may be no misapprehension regarding the effect of legalizing the capture of immature lobsters, and, as a result, the abandonment of any effort at protection. For, as shown in the extracts quoted, there is "unrestricted capture of the adults and young," and it would be difficult to devise "means more efficient for the annihilation of the lobster."

In view of all this, it is evident that the preservation of the lobster in the coast waters of Massachusetts is a question that deserves careful and intelligent consideration, uninfluenced by prejudice or personal considerations. As the matter now stands,

the State must of necessity choose between making an attempt to save the lobster from further and continuous depletion by the enactment of suitable laws and making provision for their vigorous enforcement; letting existing conditions continue, inadequate though they may be; or repealing, directly or in effect, all restrictive measures, with a full knowledge of the result, which must inevitably be the rapid decimation of the species and its destruction as a commercial factor, with the consequent enforced abandonment of the industry it now supports.

If the former is attempted, it is evident that something more radical and efficient will have to be done than has heretofore been attempted. Whether this shall be in the form of a close season, the adoption of a license law similar to that which has previously been suggested, or some other measure that will accomplish the purpose, must be determined by those upon whom the responsibility of action rests.

It is pertinent to this question, and it is the duty of this commission, to state that the enforcement of present laws relating to the lobster is attended with many difficulties. The custom adopted by the fishermen of scalding immature lobsters, so that the uncooked flesh can be removed from the shell, and the latter be thrown away, is an obstacle to the enforcement of the law relating to mutilated lobsters that, so far, has proved insurmountable. This scalding process takes place on the boats upon the fishing grounds, or upon dry ledges or small islands off the coast. In either case it is impossible to apprehend the fishermen engaged in such work, for they are exceedingly alert, and avoid the presence of strangers, while the approach of an officer would cause the instant disappearance of all material that might be used as evidence to convict. Add to this the fact that the material thus obtained is held by the courts to be "cooked lobster," and it is evident that transgression of the law relating to mutilated lobsters cannot easily be prevented. It has also been held by legal authority that mutilated lobsters in a hotel are not "in possession" of the party in control of the house.

It is not difficult to see the effect of this, and this is not all; and the pressing question now is, What shall be done about it? Evidently existing legal restriction is not fully adequate to prevent the gradual extermination of the lobster, and,

as has been intimated, the choice may lie between abrogation of all restriction or an attempt to provide measures that may reasonably be expected to furnish the protection actually required.

This commission has for many years labored earnestly to preserve the lobster from destruction, both by suggesting protective legislation and by the enforcement of law. But, despite its best endeavors, which have been exercised solely in the public interest and in harmony with ideas promulgated by the highest scientific authorities, it has been compelled to witness a continual decline in the abundance of the most valued crustacean known to commerce. For this reason, and for no other, it now feels compelled to deal with this subject at greater length than usual, and to put on record in this report a few salient facts of special importance, at the same time conceding that the subject is one which might justly demand greater elaboration.

The present year is the first occasion when the tabulated returns have indicated no serious falling off in the lobster catch, and possibly this may be a just reason for assuming that the influence of the artificial propagation at Wood's Hole and Gloucester is being felt, and that hopes may be cherished that the future will show still greater improvement, if this State is true to itself, and takes such action as it may to secure the benefits from the help thus given by the federal government.

That this is a matter of grave concern to the United States Fish Commission is shown in a communication, dated Feb. 21, 1900, addressed by acting commissioner W. de C. Ravenel to Hon. Charles H. Grosvenor of Ohio, chairman of the committee on merchant marine and fisheries, United States House of Representatives. After showing that the lobster catch of Massachusetts had declined from 4,315,416 pounds in 1880 to 1,693,741 pounds in 1898, the following statements were made by Mr. Ravenel: "The commission has for many years been deeply solicitous for the welfare of the lobster fishery of Massachusetts and the other New England States, and has viewed with great concern the steady diminution of the supply. The laws of the various States are in the main commendable in principle. . . . In the opinion of the commission, the more rigid enforcement of the existing laws is urgently demanded,

in order that the decline in the fishery may be arrested. . . . To illustrate the magnitude of our hatching work at the places named [Wood's Hole and Gloucester], it may be stated that during the past five years 387,041,705 young lobsters, artificially hatched, have been liberated by the commission on the Massachusetts coast. When it is recalled that practically all of the eggs from which these were hatched would have been destroyed had the commission not purchased the egg-bearing adults from the fishermen, it can hardly be questioned that these operations have had a decided influence on the supply, although they have not as yet appeared to arrest the decline, in the face of over-fishing and the destruction of short lobsters and of brood lobsters carrying eggs."

That the hoped-for "influence" of this great effort has not sooner been noticeable may be due, aside from the reasons given by Mr. Ravenel, to the slow growth of the lobster, which is supposed not to attain maturity until it is about five years of age. Thus the artificial propagation of 1895 would only now begin to show results, so far as the catch of lobsters is concerned, though it will be noticed that the decline in egg-bearing females has not yet been arrested. There may also be serious doubt in the minds of many as to any encouraging change in the condition of the lobster, for aside from the reports submitted by fishermen, the information received is unanimously to the effect that there is a growing scarcity of the species.

Cultivation of Clams. — The soft clam (*Mya arenaria*) is a species indigenous to our shores, which has always been of importance, both as a bait and food resource. The demand for it in recent years is a constantly growing one, and the full utilization of the large areas where it occurs is a matter of great consequence to the State. The continuous digging over of clam flats has necessarily led to a marked decline in the available supply of this bivalve in many localities, if not in all. Consequently, anything that promises to restore the abundance of the clam, to an extent that will enable it to yield many times its present product, not only deserves attention, but should command such action on the part of the State as will insure the best outcome.

Experiments have recently been made by the United States

Fish Commission which demonstrate the feasibility of cultivating the clam so that results can be obtained far exceeding those believed to be possible in any other similar enterprise. These experiments have an additional value to our citizens, because they have been conducted chiefly in this State, consequently they serve as a safe basis upon which to predicate the outcome of any attempt to cultivate clams on our shores for commercial purposes.

The matter was considered of sufficient importance to warrant an inquiry regarding it, by the chairman of this Board, who visited Wood's Hole and personally examined the clams, as they appeared both before and after being "planted." The evidence was convincing that, under favorable conditions, small clams that are transplanted will increase in size several hundred per cent. in one year. The process is simple and inexpensive, as compared with the results. In many places where clams occur, if not in all, young clams (or at least small ones) are found in great numbers some distance above the areas where larger specimens are commonly taken. These half-tide clams never grow large if left in their original beds; but when transferred to flats nearer low water, where the conditions are otherwise adapted to their existence, they develop with surprising rapidity, and yield a return for the labor or money expended that can scarcely be looked for elsewhere.

An important question in connection with this is whether legal control of clam-producing areas can be given to individuals or towns, so that they may be invested with rights of ownership, and entitled to protection in property rights, as is the case in the ownership of under-water territory for the cultivation of oysters, in Connecticut and other States. If this cannot be done, it will manifestly be in the public interest for the State to undertake such cultivation and protection of clam-bearing areas as will secure desired conditions, unless there are obstacles in the way that do not now appear.

Sea Fisheries. — The general success of the deep-sea fisheries has been most gratifying. This has been due to good catches and an active demand for the products. Aside from the financial returns, which have rarely been so satisfactory, the loss of life and property, which is often such an appalling feature of these industries, is less than for many years.

The marked success of the deep-sea mackerel fishery, beside being a notable repetition of history, has been the most salient feature of the year's fishing, and in some respects the most remarkable in the history of the industry. After a long period of scarcity, so pronounced at times that predictions of the ultimate extermination of the species were not lacking, the mackerel reappeared this year, on off-shore fishing grounds, in unusual numbers, resulting in phenomenal catches and earnings, while the average stocks of vessels are believed to be larger than ever before. The aggregate yield of the fishery has not been remarkably large compared with some other seasons, due solely to the fact that the number of vessels employed was much smaller than in those years. This was a most fortunate circumstance, for it insured remunerative prices for the large catches, whereas, if the fleet had numbered four or five times as many vessels, as was often the case from thirty to sixty years ago, the product would have overstocked the market and made the industry unprofitable, even though the yield of fish might have been unprecedented.

The total catch for the season, according to the most reliable data available, was about 165,000 barrels, of which 88,003 barrels were landed in a salted condition and the balance were marketed fresh; of the latter, 54,500 barrels were received at Boston.

The auxiliary steam schooner "Helen Miller Gould," of Gloucester, stocked \$40,600, and her crew shared \$863.75 each. The schooner "Flora L. Nickerson," of Gloucester, is credited with landing 4,000 barrels of mackerel, 2,000 salt and 2,000 fresh, and stocking \$28,600, her crew sharing \$702.25 each. The schooner "Richard Wainwright," also of Gloucester, stocked \$28,000, and several other vessels had stocks of \$20,000 or upwards. The head of a Gloucester firm is authority for stating that four schooners from one employ landed an average of more than 2,500 barrels of mackerel and stocked an aggregate sum of \$100,000 in round numbers! Compared with anything previously on record, these figures, as the result of six or seven months' fishing, are certainly noteworthy, especially now, after a period during which the mackerel fishery was pursued under many discouraging conditions.

In view of the suggestions offered in the last report of this commission, attention may justly be invited to the fact that the

highest stock ever obtained in the mackerel fishery was that of the steam schooner "Helen M. Gould," which was launched last spring. Capt. Solomon Jacobs, who commanded her, is authority for stating that on one occasion, during the prevalence of a calm, he steamed away from the fleet, that lay helpless for lack of wind, and caught 400 barrels of mackerel, while other vessels got none. The advantage of steam under such conditions or in taking fares of fresh fish to market in summer is too obvious to demand discussion.

There is reason to believe that one or more sea-going steamers will be built for the market fishery of this State in the near future. If this action produces anything like the result that has followed the introduction of steam in the British fisheries, there is reason to anticipate conditions of prosperity in our deep-sea fishery that might not otherwise be possible.

It is believed that the salt herring industry has been more extensively prosecuted by citizens of this State than ever before, and that there is a tendency to exercise greater care in the preparation of the product.

This commission has made an effort, through bringing our merchants in business contact with parties in France, to build up a trade in cod roe, which, if properly cured, is in good demand for the sardine fishery, and can be readily sold at a fair price. Under ordinary conditions, the roe is thrown away as a waste product. If it can all be saved, the annual product will be large, and the money value will be no inconsiderable item. The business has already been successfully inaugurated, with the utmost satisfaction to shippers, and it is hoped the future may bring desired results.

An attempt has also been made to secure the introduction of a salt new to this country, which is believed to be better adapted to the cure of certain kinds of fish, notably the mackerel and herring, than any salt heretofore used for that purpose. All arrangements were made for the consignment of a cargo to Massachusetts merchants, but shipment has been delayed because of the scarcity of tonnage, due to demands incident to the South African war and the recent trouble in China. It is, however, confidently anticipated that a cargo of this salt will be received here before the opening of another season, so that it may be fairly tested next year.

Among possible improvements in the preparation of fishery

products, the proper utilization of halibut heads deserves consideration. The edible portions of the head of a halibut are perhaps richer in nutritive qualities and more palatable than any part of the fish, and are not excelled in this particular by the salmon or any other fish product that is canned. Aside from a comparatively small number that are salted in brine, the heads of halibut brought fresh to our markets are manufactured into oil and fertilizer. That the edible portion of the heads can be extensively canned is believed to be beyond question. In 1898, when in Norway, the writer had the opportunity to eat canned halibut heads which had been prepared at the fishery school in Bodo, where various experiments are made in the utilization of fishery products. For richness and delicacy of flavor this product compared favorably with any canned fish obtainable in the markets of the world. It should command appreciation and a ready sale. In view, therefore, that probably not less than 500 or 600 tons of halibut heads are annually brought to our markets, it seems possible to utilize them profitably in producing a large amount of nutritious food, instead of using them for other and less important purposes.

GAME.

Importance of preserving Game. — The retention within the boundaries of this State of a supply of game to assure, beyond question, the continuance of species that cannot be replaced if once exterminated, and the maintenance of a sufficient abundance of various kinds to serve as an inducement to the public to seek healthful recreation in hunting, are objects which necessarily engage the attention of this commission to a large degree, and are worthy the consideration of every public-spirited citizen. What the privilege of hunting means to many of our citizens, whose business confines them to work shops, manufactories and counting rooms, cannot be expressed in words or figures. The desire to hunt is almost universal, and probably no other form of recreation is so healthful or so helpful to jaded nerves. Some have the time and means to visit other sections to enjoy the privilege of hunting, but a larger number cannot afford this, even though they may most need the relaxation from their ordinary duties which it brings. It is, therefore, manifestly to the advantage of the general pub-

lic, and consequently beneficial to the Commonwealth, that every reasonable measure should be taken, either by propagation or necessary restriction, to promote an increase of game within our borders and thus to eliminate all fears regarding the probable extermination of certain of our most important game species. That this involves self-denial on the part of many, if not all, goes without saying; and that it places restraints upon those who have little consideration for the future or the needs of others, is equally apparent. There is, however, no other way to attain desired ends. This is so evident that it is believed the harmony of feeling and action that characterized the movement on the part of sportsmen in the early months of the year to secure satisfactory legislation will continue, and that the same spirit that then prevailed will govern future efforts.

Effect of New Law. — Although it is yet early to expect a marked change in conditions, as a result of the enactment of recent laws for the protection of game, nevertheless, reports from various sections of the State indicate that there has been material improvement in many localities, so far as the partridge, quail and woodcock are concerned. The quail is reported as more than usually abundant in all sections of the State where it ordinarily occurs; and those familiar with its haunts and habits predict a large increase of the species next year, if the climatic conditions are not too severe during the winter. The effect of the vigorous enforcement of the new law (chapter 379, Acts of 1900) for the protection of partridge and woodcock, and the prohibition of their sale, is indicated in the following extracts from reports of deputies: —

Deputy Alfred Greenquist of Roslindale (a suburban section of Boston) says: “Partridge and quail have increased wonderfully around here.”

Deputy F. S. Knowlton of Wenham reports that “There are more partridges and quail in this part of the county than there has been for years.”

Deputy L. Freeman reports “Partridges are very scarce” at Amesbury, due to destruction in other years.

“Partridge and quail are plenty this year” at Ipswich and vicinity, according to Deputy James A. Lord.

Deputy George T. Spence reports that about Lowell “Partridges seem to be quite plenty this year, but very wild.”

At Lynnfield Deputy George Williams states that "There are more partridges around than I have seen for years."

In the woods about Wakefield "Partridges and quail are more plentiful than for a number of years," says Deputy Samuel Parker.

The above will give an idea of conditions in certain localities in the eastern section of the State, while the quotations that follow will indicate local conditions in the central and western sections. It may, however, be stated that reports from Worcester County and some other localities in the centre of the State seem less favorable as a rule than those from either the east or west.

Deputy T. J. Manly of North Brookfield, who is a close and intelligent observer, reports that "Partridge have done well in this section. Quail are more plentiful than in twenty years last past."

At Ware and vicinity Deputy Dennis Shea finds "Partridge and woodcock are quite plentiful" and "quail very scarce."

At Millbury Deputy G. E. Whitehead thinks "Partridge are scarce; quail are plenty," and he has not "found many woodcock."

At West Upton, according to Deputy David A. Warren, "There is a good number of partridge and quail at the present time [Nov. 24, 1900], and if we don't have a hard winter there will be plenty for breeders next year."

Of Burlington and vicinity Deputy Harry L. Haskell says: "There are quite a number of quail about here, also a number of grouse."

Deputy S. W. Nickerson writes that "Partridges are very much on the increase" at Franklin and contiguous territory.

In the central and southern sections of Berkshire, and especially in the vicinity of Pittsfield, Deputy Benjamin Smith says: "There are lots of birds left over, more partridges than I have seen for a number of years. If we have a good spring for hatching, there will be fine shooting next fall."

In northern Berkshire Deputy Elmer R. Burnett of Florida, writing on Nov. 20, 1900, says: "There are large flocks of partridge that have not been fired at this fall, and the close season will soon be here and find three times the birds there were one year ago."

These statements are substantiated by others of similar tenor, and much more might be added to indicate the influence of the new law in preserving the partridge (and probably the woodcock as well) in various sections of the State. Available space will not, however, admit of this here, and doubtless nothing more is required, though the importance of the subject justifies the prominence given to it.

Deer. — Deer are reported more or less common in nearly all sections of the State, and in some localities are reasonably abundant, as many as ten or a dozen having been seen in some places. There seems to be a general disposition to refrain from killing them; only a few complaints of such violation of law have been received, and two convictions were obtained.* But deer are often seriously harassed by hounds, and doubtless fatal results may sometimes follow, of which no information that can be used in the courts is obtainable.

Pheasants. — Pheasants have been seen in greater or less numbers in and near those localities where they have been distributed, and there are many evidences that they are doing well under natural conditions. The references to them are too numerous to quote here. Mention may be made, however, of the fact that it is not uncommon for numbers of wild pheasants, generally cocks, to be seen in the early morning near the coops at the aviary in Winchester, and, to a less extent, the same is true at Sutton. These promptly disappear if a person is seen.

Pinnated Grouse. — Deputy John E. Howland is of the opinion that the pinnated grouse, on Martha's Vineyard, is "soon destined to become extinct, unless something is done for it at once;" and he recommends that the fine for killing it "be fifty or even one hundred dollars."

Sea Fowl. — Ducks of various species have been reported in exceptional abundance in those localities where they are specially protected, notably in Quincy bay and Plymouth harbor. They have also occurred in large numbers at Chatham, Brant Rock and some other points.

* An appeal was taken to a higher court in one case.

BREEDING GAME BIRDS AND ANIMALS.

Winchester. — The work at the State experiment station at Winchester, for breeding birds and animals, has been successfully carried on during the past season, and much has also been done toward increasing facilities for the next season.

The Belgian Hare. — From experiments made at this station for two years with the Belgian hare (*Lepus cuniculus*), it seems desirable to stock the woods of the State with it as a game animal. In furtherance of this idea, Mr. Brackett donated to the State his entire stock of hares for breeding purposes.

The work undertaken seems to make it necessary briefly to refer to the rabbits which are indigenous to Massachusetts. First to be considered is the large so-called rabbit, which is white in winter and brown in summer. This is not a rabbit, but a hare, it is rarely found in good condition and is not generally considered good for food. At present there are but few of this species in the State. The little rabbit, known as the cotton-tail or coney, is common throughout the State; its habits are in many respects quite different from those of the hare. The latter never burrows. The coney, while it does not dig its own burrows, occupies abandoned woodchuck holes or takes shelter under old stumps, stone walls or ledges and brush heaps. It does not breed in these places, but selects a spot for a nest on open grass-land, near woods or thick underbrush. The nest is made by biting and scratching through the sod, making a hollow an inch or two deep, and lining it with soft leaves and grass. In this the female brings forth her young, and carefully covers them with grass. She breeds but twice a year, in May and August, having from five to seven young in each litter, born naked and blind. The mother never visits them except at night, and it is interesting to watch her movements in the early dusk, especially if it is moonlight. She never approaches the nest directly, but circles at some distance around it, constantly rising and looking carefully in every direction, until, finding nothing alarming, she changes her course and creeps to the nest. Because of the frail character of the nest, which offers no protection from wind and storm, many of the young are destroyed during the heavy rains in May, so that virtually only about one litter is reared in a season. This,

together with the fact that they are preyed upon by many enemies, has prevented them from becoming abundant. Late in the fall they are generally fat, tender and good for the table.

The so-called Belgian hare is a rabbit, and is reputed to be a cross between the English white, German red and Dutch black rabbits. It digs its own burrow, generally on a hill side, sloping slightly upward, thus securing complete drainage. The excavation is from four to eight feet deep, with the nest at the inner end, and the latter receives its first lining of leaves and grass, but is not occupied except for breeding, and rearing the young. About two days before parturition, however, the doe lines the nest warmly with hair torn from her body. The young are born naked and blind. Like the coney, the Belgian hare does not visit her young during the day. On entering the burrow in the evening the mother usually closes the entrance behind her, and on leaving in the morning again closes it, stamping and packing the ground so thoroughly that one would not suspect a burrow was there. This remarkable instinct is an important element in the preservation of the young. This species breeds from four to six times a year, and will average five or six young at a litter; with proper surroundings and a little care, nineteen out of twenty will live. Our experience for the last three years goes to prove that they are healthy and hardy, if raised under natural conditions, in the open air, instead of being kept in close hutches.

G. H. Corson, who has had large experience in raising these rabbits, — the so-called Belgian hares, — claims that “all hutch-bred fancy rabbits have consumption.” If this is true, and our observations tend to confirm it, such animals are unfit for stock purposes or for food.

The works on rabbit breeding give a list of over twenty diseases prevalent among Belgian hares, mostly fatal, and writers are particularly careful to caution the breeder not to expose them to currents of air. At the State rabbitry they have been exposed to all climatic changes, being kept in wire-covered enclosures with a box attached, where they can take shelter at will, or they are allowed to run in the large enclosure. Some such arrangement must be adopted, if the species is to be successfully reared for any useful purpose, and especially for stocking covers. The Belgian hare has come to stay, for it is

excellent food, is easily raised, and constitutes a fine farm product, where there is land enough to devote an acre or two to rearing it.

It is the intention of the commission to stock the State, more or less, with these rabbits, as an addition to our game resources. As reared at the State rabbitry, the Belgian hare is as hardy as our own native wild rabbits, and far more prolific.

The fears expressed by Secretary Wilson of the United States Department of Agriculture, that the species, if let loose in our woods and fields, may become a nuisance, are believed to be groundless, so far at least as Massachusetts is concerned, though there may be reason for anxiety regarding the western sections of the country, where there are wide areas of territory more or less unsettled. The value of the flesh for food and the pelt for fur will probably preclude the possibility of overstocking, at least in thickly settled States, and laws for protection will be required during the breeding season, when both the flesh and fur are unfit for use. If, even with such protection, the Belgian hare can possibly be increased sufficiently in our woods to partially supply the demand for something to shoot at,—a demand that must constantly increase with the growth of population and the recognition of necessity for healthful recreation,—then much will have been accomplished for the hunter and the food resources of the State.

Pheasants. -- The breeding and rearing of Mongolian pheasants at Winchester has been carried on as usual, but on a somewhat larger scale than heretofore, while the plant for this work has been improved in various ways.

A large number of eggs were obtained and placed in incubation, either under hens or in incubators. Under ordinary conditions the result should have proved most satisfactory. But, while a greater number of chicks were hatched and reared than in previous years, the complete success of the work was seriously, if not disastrously, handicapped by the active operation of a near-by stone quarry, the explosions of which had an effect on the eggs undergoing incubation similar to that resulting from heavy thunder, the latter being well known to poultry breeders. It is, of course, difficult, if not impracticable, to arrive at anything like exact estimates of the damage caused by the condition referred to, and at the best we can only base



MALE MONGOLIAN PHEASANT.

conjectures upon results under more favorable circumstances. Unfortunately, too, we are left in doubt as to the possible influence of other conditions, the study of which cannot be considered unimportant.

It is proposed to retain a certain percentage of these birds for spring distribution, and about half of the available supply is assigned for fall distribution, as usual.

The Ruffed Grouse. — Experiments were made during the past season in artificially rearing the partridge (*Bonasa umbellus*). A few eggs were obtained. Part of them were placed under a hen and the remainder in an incubator. Both lots hatched fairly well, producing strong, healthy chicks. There was every indication of success until they were about four weeks old. They had in the mean time been fed on maggots and green food (lettuce and young clover). The attempt to change their food, by adding grain, proved disastrous and caused their death. There is no danger in gradually changing the food of young pheasants to grain when they are three or four weeks old, and it was assumed that the same course could be pursued with the young partridge. The result in this case led to the conclusion that further efforts might be attended with better success.

The experiments with these birds, together with careful post-mortem dissection and examination, led to finding a food which may be more successfully used. Its discovery occurred too late to be of use with the young grouse, but it was fed to very young pheasants with excellent results. If its use does nothing more than to check the mortality so prevalent among pheasants during the first three weeks of their existence, and promotes their early growth, it may be considered an important outcome of the partridge-rearing experiment.

Protection for Birds and Animals. — The State aviary and rabbitry covers about one and one-half acres of land, enclosed by a wire fence six feet high; two feet on the lower part is of one-inch mesh (set eight inches underground) and the upper part is two-inch mesh. This successfully barred out all destructive vermin except cats, which found no difficulty in climbing the sides of the posts and getting into the enclosure. Consideration for the health and hardiness of the young pheasants and rabbits makes it necessary, during the first four

months after birth, and as much longer as possible, that they should have the freedom of the yard. In endeavoring, however, to carry out this plan, the cats, whose depredations were committed at night, succeeded in destroying a large number of the young stock, to that extent rendering abortive the work of the State. During the past four years one hundred and thirty-seven cats were killed in and around the enclosure. Notwithstanding this slaughter, their numbers did not seem to materially decrease. It therefore became a question of either abandoning the work at this place or devising some means of protection. Accordingly, last April an insulated telegraph wire was stretched around the entire enclosure, about an inch above the wire fence. To this was attached a battery of twelve Excelsior cells, arranged in multiples of four, thus giving a strength sufficient to instantly kill gray squirrels attempting to cross the wire. During the five months it was run not a cat entered the yard.

The yard was wired for cats, but this did not suffice to keep out thieving bipeds, who in July cut the wire fence and stole some of our best breeding stock. Had such a thing been anticipated, it would have been easy to so wire the fence that the marauders would have paid a higher price for Belgian hares than is now asked for imported stock. In the vicinity of the water works a small motor and dynamo could be used to advantage. With a forty-foot pressure, a stream about the size used for a lawn sprinkler would be sufficient for from seventy-five to one hundred volts, a current that neither cats nor thieves would care to encounter more than once.

Reference is made to this in the public interest. The hen thief and cats have always been evils that the poultry breeder has had to contend with. The high prices asked for Belgian rabbits increases the temptation to steal them. If they are to be raised for food, as will undoubtedly be the case, sanitary conditions demand that they must be bred in the open, not in hutches; and this will necessitate enclosed grounds. No matter how well the grounds may be fenced, the electric wire offers the surest protection from cats.

Sutton. — The experiment of breeding and rearing the Mongolian pheasant on the State land, at the Sutton fish hatchery, was attempted this year on a scale sufficiently large to demon-

strate the feasibility of successfully carrying on this work at that station. Mr. Arthur Merrill, the superintendent of the station, had succeeded, in 1899, in hatching out a few pheasant eggs and raising a fair percentage of the chicks to maturity. Thus, in the spring of 1900, he had seven female and three male pheasants. From these he obtained about 200 eggs, which were incubated by bantam hens. More than a hundred chicks were hatched, and the loss in rearing was small, having in mind the well-known tendency of the pheasant to die during the first few weeks after birth. About eighty of the birds of this year's brood have attained an age when the chance of life presumably is at its maximum, and they may be deemed free in large part from dangers which beset this species in its younger stages.

It is proposed to keep about thirty or forty of these birds for next year, when, if the same degree of success is attained as attended the effort this year, the result will be a large accession to the available supply of pheasants for distribution.

The grounds around the Sutton hatchery are well adapted to the breeding and rearing of pheasants; the locality is a retired and quiet spot, apparently free from the predatory incursions of cats or other destructive animals, and the additional cost of conducting an aviary there is slight. This is due to the fact that the personnel actually required for fish cultural work can care for the pheasants without additional cost for labor, while the refuse from the fish food at the station constitutes an important factor in supplying food for young birds. Additional coops or enclosures can, in large part, be built by the station force, so that the cost for expanding this work is practically limited to a part of the food and materials for construction. In a word, all the conditions, including the requisite skill, are available for carrying on the pheasantry at Sutton for a minimum outlay, and assisting to that extent in making possible the satisfactory stocking of the State with a desirable game species.

ENFORCEMENT OF LAWS.

General Considerations. — Laws, however good they may be, are useless, non-effective and a reproach to the State, unless they are enforced with sufficient vigor to command respect, and to leave in the public mind the impression that they represent

the majesty of the Commonwealth, that they are to be applied without fear or favor, and that no one is mightier than the law which has been enacted by the people's representatives, for the public welfare. Supported by these considerations, and realizing the importance of the responsibilities with which it is charged, as well as the necessity for compelling a reasonable respect for the dignity of the State, a most earnest and strenuous effort has been made by the commission to enforce the fish and game laws with such resources as were available. These, it may be remarked in passing, consisted, first, of unpaid deputies, persons whose interest in the protection of fish and game was sufficient to prompt them to devote more or less of their time to the enforcement of law, to giving warnings, etc., and in a large majority of cases without receiving a cent for their efforts, since the State pays them nothing if they secure no convictions. In some instances deputies have obtained a small remuneration from receiving half of the fines resulting from convictions, to which they are entitled; but this is exceptional, and instances are not unknown where a volunteer deputy, serving without pay, has remitted his share of the fine in favor of the party convicted, whose indigent condition seemed to make such action a deed of charity.* Second, special paid deputies were employed, whose terms of service varied in length according to circumstances, and whose rate of pay was regulated by the financial resources of the commission and by other conditions that often enabled the procurement of service for a small remuneration from the State. Many of the paid deputies have served as unpaid officers, and have thus gained experience which is valuable to the State; and others have served the State or municipalities in positions that qualified them for the work they were appointed to do. One hundred and six unpaid deputies were appointed. Of these, four declined to serve, ten were subsequently appointed specials on pay, one resigned, and the appointments of three were revoked. Aside from the deputies appointed to look after ponds and fishways, — one at Yarmouth and one at Lowell, — the maximum number of paid deputies

* An instance of this kind, which occurred during the present year, reflects honor upon Deputy George T. Spence of Lowell. After repeated warnings, he felt compelled to make an arrest for violation of the law relating to fishing near fishways on the Merrimac River. The parents of the party arrested were poor, and, as the payment of the fine imposed by the court bore heavily upon them, the officer's share in it was placed at their disposal.

employed, which was during the open season in October and November, was twenty-six. The average monthly pay was about \$32; the maximum pay, \$2 per day; the minimum, \$10 per month.

Financial Resources. — The action of the Legislature, in making a liberal appropriation for the work of the commission, contemplated the employment of a limited number of paid deputies for the enforcement of law. The public demand for this, and its manifest advantage, were so much in evidence that the full amount requested was granted. And it is gratifying that the results obtained have fully equalled the most optimistic anticipation, and have clearly demonstrated the desirability of continuing the system thus inaugurated.

It has been deemed proper to devote to this work every dollar that could be safely assigned to it. Estimating for December, the total expenditure for the year, for salaries, travelling expenses, boat hire, etc., is \$7,473.11. This does not include money expended for printing and mailing posters and abstracts of fish and game laws.

System adopted. — The work of enforcing the fish and game laws this year made necessary the adoption of a plan which, it was hoped, would yield satisfactory results. Among the measures deemed most important was the diffusion of information. Accordingly, a large number of “Abstracts of Fish and Game Laws,” in pamphlet form, and of cloth and paper posters, were printed and distributed as soon as practicable after the Acts of the last Legislature were available. The demand for these has been so phenomenal that a second edition of laws in pamphlet form had to be ordered. The posters have been put into post-offices throughout the State, and also in railroad stations and other public places, in addition to being displayed on trees, fences, etc., in regions frequented by hunters or anglers. Beside this, the press throughout the State has published the laws, and thus scattered broadcast this information. It may, therefore, justly be assumed that many violations of law have been prevented by the action above referred to, and at least there was no reason for one to transgress unwittingly.

For reasons already stated, and also for other reasons not necessary to specify here, the unpaid force of deputies appointed

at the beginning of the year, while a most desirable and important auxiliary, particularly in furnishing information and being a moral repressive force upon those disposed to act illegally, could not, of course, be relied upon for the conduct of a forceful, systematic effort at enforcement of laws. It is only just to say, however, that in some instances volunteer deputies have most efficiently co-operated with paid officials, with the happiest results, and in not a few cases they have, unaided, performed important services.

The organization of the paid force was influenced somewhat by geographical considerations, to the extent that no section of the State would be remote from one or more deputies, who could be promptly detailed to look after transgressions of law, but the most important requisite considered was fitness for the business to be done.

It was deemed necessary that two or more deputies should work together, and during the most active portion of the season parties numbering from three to seven were sent into districts where little or nothing could be accomplished with a smaller force. By rapidly moving parties like this from one section to another, where their presence seemed most needed, and there frequently co-operating with local unpaid deputies, important results were secured. The influence of this system was not chiefly in the number of arrests made and convictions secured, but in the fact that those habitually disregardful of fish and game laws could never tell when they were liable to meet an officer of the State, and, more than that, they did not know him until they were in the clutches of the law, as would be the case if local deputies alone had to be relied upon. Also, it has happened that parties who have started to run away from arrest by one officer have run directly into the arms of another. The moral effect of all this is too obvious to require discussion, and it is not surprising that citizens interested in the preservation of fish and game, and the press as well, have commended the work accomplished.

Results.— More than 200 arrests were made during the period covered by this report, and the penalties imposed by the courts for violations of fish and game laws exceeded \$2,100. The results obtained by the enforcement of law, the estimation in which the effort made is held, and the effect

of the system adopted, are, in part, shown by the following brief extracts from the press and reports of deputies:—

The North Adams “Evening Herald” of July 17, 1900, declared that “The fish and game laws are being lived up to all through this section at present better than ever before.”

“One thing we have to be thankful for in connection with the appointment of game wardens,” says a writer quoted by the Boston “Transcript,” “and that is, that one can take his family in the woods on Sunday for a stroll if he wants to, and not run the risk of getting a bullet in some one of them. It is a fact, also, that the game laws are being better enforced in this section at the present time than ever before in my memory.”

In a Springfield despatch to the Boston “Globe” of November 12 the following statement occurs: “The wardens report that the law is accomplishing the desired result, inasmuch as no snares have been discovered in the territory visited, while market hunters fear the law so much that there are no partridges offered for sale in the market or out, although the demand is great.”

Deputies Charles N. Hunt and Otis Thayer of Quincy, in a joint report, state that “Game is doing well, and the sportsmen have had good shooting.”

Deputy Thomas L. Burney of Lynn makes the following statements: “In the enforcement of the fish and game laws I have endeavored . . . to act with fairness, impartiality and discretion. At the beginning . . . I found a strong feeling expressed against the enforcement of laws, . . . though now, at almost the end of the season, I am pleased to be able to state a much better feeling exists; and I have no hesitation in saying that, with the same method of enforcement in the future, it will not be long before every man who takes the least interest in the protection of fish and game will be in hearty accord with this commission. . . . The law prohibiting the sale of ruffed grouse and woodcock has had the effect of almost entirely stopping the snarers and market shooters from carrying on their work. In all my searches in the woods I have failed to find a line of new snares. . . . Observing people have not seen so many song birds for ten years past. . . . Of game birds there has been a large increase.”

Deputy John F. Luman of Palmer reports that “The law

relative to the sale of partridge is well lived up to." He also claims that violations of law, especially Sunday hunting, are much less frequent than formerly.

Messrs. A. M. Nichols of North Adams, Burnett and Ruberg of Florida and Smith of Pittsfield find that snaring has practically been abandoned this year; and similar information comes from Deputy Clifton R. Bridges of North New Salem, Deputy George G. Tidsbury of Ashland and many others. Writing under date of November 19, Mr. Tidsbury says: "I started in last Monday to make a thorough search of the woods for snares. . . . My search takes in the woods of Ashland, Framingham, Holliston and Hopkinton, and I intend to extend it to Sherborn. In all my search . . . I found none in use this fall. I spent most of yesterday (Sunday) in the woods for Sunday gunners, and am glad to state they were as scarce as hen's teeth in this section. . . . No partridge have been shipped from these towns as yet." Referring to the new game law in a previous report, and after having discussed its restraining effect in his locality, he declares: "The law is a success."

It would be practicable to multiply these statements indefinitely, but it would be only cumulative evidence, and for that reason little or no allusion has been made to some of the most effective work accomplished. The tabulated statements elsewhere will show in greater detail the result of enforcement of laws, so far as the record of arrests, fines, etc., is concerned.

Future Work.—The importance of continuing the work thus begun will doubtless be apparent to all who have an interest in the protection of fish and game. If, however, it is to be prosecuted on a scale commensurate with the importance of the object sought, it is evident that suitable provision must be made by the Legislature. Whether an appropriation is made fully adequate to meet the requirements of the public demand, is a matter that must largely rest with the people. For, while the commission is fully in accord with anything that may be required or may be done along this line, and will cheerfully accept any action that may enlarge the possibilities of enforcement of law, and while it has every reason to feel satisfied with what has been accomplished during recent months, the fact is recognized that the demand for expansion, if there is

any, should come from the citizens who appreciate what it may mean to the Commonwealth to have fish and game laws well enforced in the future.

Convention of Sportsmen.—It was the purpose of the commission to have a convention of sportsmen at the State House on November 22, and invitations were issued accordingly. But the sudden death of Commissioner Buffington, whose funeral services were held on that date, made necessary the recall of the invitations, and the postponement of the convention to an indefinite date. So much that was desirable and helpful resulted from the convention held at the State House last year that it was considered highly important that a similar meeting should take place this autumn.

NEW LEGISLATION.

Attention is invited to the following laws, which seem to need revision:—

Chapter 104, Acts of 1876, amended by chapter 28, Acts of 1881, being “An Act requiring Certain Returns to the Commissioners on Inland Fisheries,” should be amended so that it will read as follows:—

SECTION 1. The owner or owners of every pound, weir or other similar fixed contrivance, or of any fishing pier, seine, drag or gill net, used in any of the waters of this state for fishing purposes, shall make written report, under oath, to the commissioners on inland fisheries on the last day of October in each year, specifying the number of *pounds and value* of each kind of edible fish caught by his or their respective pound *nets*, weirs, or other similar fixed contrivances, piers, seines, drag or gill nets, and *the number and value of lobsters taken in lobster traps* during the year next preceding the date of said report, *also the number and value of apparatus used and the number of men employed.*

SECTION 2. *Upon application* it shall be the duty of the commissioners on inland fisheries to furnish each owner or proprietor of any pound *net*, weir or similar fixed contrivance, pier, seine, drag or gill net *and lobster pots or traps*, on or before the fifteenth day of March in each year, with suitable blank forms for the reports required by the preceding section so arranged that each *month's* catch may be separately recorded thereon; and, in filling out such reports, such owner or proprietor shall give the result of each *month's* fishing, so far as practicable; and it shall be the duty of such

owner or proprietor to apply to the commissioners on inland fisheries for such blank forms.

SECTION 3. Whoever knowingly and wilfully violates any of the provisions of this act shall be punished by a fine of not less than ten nor more than one hundred dollars.

SECTION 4. This act shall take effect upon its passage.

The amendment of the above law, as indicated, will make it practicable to obtain statistics of some value. The data secured under the law as it now is are of doubtful value, and furnish no basis for intelligent consideration of the fisheries.

A law prohibiting the catching of trout less than six inches in length is necessary to secure satisfactory conditions in our brooks. If such a measure is too stringent for application to mountain brooks in Berkshire, they can be exempt, for that would be better than that the whole State should suffer from present conditions.

Chapter 109, Acts of 1889, should be amended so as to read as follows : —

SECTION 1. Whoever during any season of the year catches or takes, and whoever has in his possession in this Commonwealth, with intent to sell, any female lobster bearing eggs, shall be punished for each offence by a fine of not less than ten nor more than one hundred dollars, or by imprisonment in the house of correction for not less than one nor more than three months : *provided, however,* that a person catching and taking any such lobster and immediately returning it alive to the waters from which it was taken, shall not be subject to such penalty ; *provided, also,* that this act shall not apply to lobsters spawning in lobster cars, if they are immediately returned alive to the waters aforesaid ; *and provided, also, that exposure for sale or possession otherwise than as heretofore provided, shall be prima facie evidence of intent to sell.*

The shooting of gulls and terns should be prohibited, and having their feathers in possession should be made illegal.

The open season on gray squirrels, hares and rabbits should be made to correspond as near as practicable to the open season on partridge, woodcock and quail. If hunting the first-named species is permitted both before and after the open season for birds, it is exceedingly difficult, if not impossible, to prevent transgressions of law.

The term “any mechanical means,” in chapter 184, Acts of 1897, has led to misapprehension of the intent of the law. For this reason the act should be amended either by striking out the words “propelled by any mechanical means,” or by inserting a clause clearly defining “mechanical means,” so that the act will be divested of ambiguity.

The law relating to small game at Essex (chapter 289, Acts of 1899), is also not sufficiently clear to be easily understood, so far as “beach or marsh birds” are concerned. Both courts, deputies and others may entertain doubts whether, under this act, the shooting of beach or marsh birds is permissible. Clearly the law should be sufficiently amended to place this beyond doubt.

Chapter 116, Acts of 1899, should be so amended that no question can arise as to its meaning, or the amount of the penalty. It is suggested it be amended as follows:—

Every Lord's day shall be close season. Whoever hunts or destroys birds or game of any kind on the Lord's day shall be liable to the penalties imposed for violation of the law during other close seasons, and such penalties shall be in addition to those already imposed for violation of the laws relating to shooting upon the Lord's day, *but not less than twenty dollars. For the purposes of this act the term game is held to mean any wild bird or animal.*

COURTESIES.

This commission is indebted to the United States Fish Commission for consignments of trout and land-locked salmon eggs and pike perch fry; also for cuts of fishes, statistical statements relating to its fish cultural work in this State, the commercial fisheries of Massachusetts, and various publications.

The post-office authorities have courteously permitted the display of posters containing fish and game laws in the post-offices of the State.

The management of the New York, New Haven & Hartford Railroad has shown this commission a similar favor by permitting the display of fish and game law posters in their various stations throughout the State.

The Forest and Stream Publishing Company of New York permitted the use of the engraving of *Gammarus fasciatus* which appears in this report.

Mr. A. M. Nichols has presented to the commission the following mounted specimens: partridge, woodcock and gray squirrel, also samples of wire snares used for the capture of partridges, and a model illustrating the method of setting snares.

This commission has been privileged to extend courtesies in the following instances:—

To the United States Fish Commission, permitting the collection of spawn lobsters; the operation of a pound net for scientific purposes; and the collection of scallops, fresh water fish, etc., for biological study.

A lot of living trout were sent the management of the Worcester East Fair, at Clinton, for the purpose of a live-fish exhibit.

The commission used its good offices with the United States Fish Commission to obtain from it the loan of a number of aquarium tanks for the management of the North Attleborough Sportsman's Show; and it also exhibited there nine pheasants, which were liberated in the covers near the town after the close of the fair.

Permits have been granted for collecting birds and eggs to a limited number of people, who were known, or who came well recommended, and also to several persons to take (or to have taken for them) lampreys at Lawrence for scientific purposes. It is believed that in all cases the lampreys were taken by Mr. Holmes, the commission's agent at Lawrence.

DEATH OF MR. BUFFINGTON.

Commissioner Elisha D. Buffington, who had served on the Board for nearly seven years, died on November 19, after a brief illness, and his funeral obsequies took place at his home in Worcester on November 22. The following resolutions, expressive of the esteem in which he was held by his colleagues on the Board, and their regret for the loss of one so long associated with the work of the commission, were passed by them on November 20:—

Whereas, Our respected colleague, Hon. Elisha D. Buffington, has been removed by death from the field of his usefulness on this Board, of which he has been an earnest and efficient member for more than six years; and

Whereas, The Board has just cause to deeply regret the loss of his ripe experience and wise counsel ; therefore, be it

Resolved, That, while bowing reverently to this decree of Divine authority, the undersigned members of the Board deeply deplore the personal and official loss that has come to them in the death of their esteemed colleague, and that they extend their profound sympathy to Mrs. Buffington and other relatives who are thus heavily afflicted and bereaved.

Resolved, That these resolutions be spread upon the records of this commission, and a copy thereof be sent to the widow of our respected colleague.

APPOINTMENT OF A COMMISSIONER.

On Dec. 5, 1900, Mr. John W. Delano of Marion, who has served on the staff of the commission for about ten years, recently filling the important position of superintendent of hatcheries, was appointed as commissioner, in place of Mr. Buffington, deceased.

JOSEPH W. COLLINS.

EDWARD A. BRACKETT.

JOHN W. DELANO.

APPENDIX.

[A.]

LIST OF COMMISSIONERS.

UNITED STATES COMMISSION OF FISH AND FISHERIES, WASHINGTON, D. C.

George M. Bowers, Commissioner.

Irving H. Dunlap, Chief Clerk.

Hugh M. Smith, Assistant in charge of Division of Inquiry
respecting Food Fishes.

W. de C. Ravenel, Assistant in charge of Division of Fish Culture.

C. H. Townsend, Assistant in charge of Division of Statistics.

Superintendents of United States Fisheries Stations.

Charles G. Atkins, Craig Brook, East Orland, Me.

E. E. Race, Green Lake, Me.

John W. Titcomb, St. Johnsbury, Vt.

Waldo F. Hubbard, Nashua, N. H.

C. G. Corliss, Gloucester, Mass.

E. F. Locke, Wood's Hole, Mass.

J. Nelson Wisner (in charge), Battery Island, Md.

L. G. Harron (in charge), Bryan's Point, Md.

John E. Brown (in charge), Central Station, Washington, D. C.

George A. Seagle, Wytheville, Va.

Alexander Jones, Erwin, Tenn.

S. G. Worth, Edenton, N. C.

J. J. Stranahan, Cold Spring, Bullochville, Ga.

Livingston Stone, Cape Vincent, N. Y.

S. W. Downing, Put-in Bay, O.

Frank N. Clark, Northville, Mich.

S. P. Wires, Duluth, Minn.

R. S. Johnson, Manchester, Ia.

Dr. S. P. Bartlett, Quincy, Ill.

H. D. Dean, Neosho, Mo.

John L. Leary, San Marcos, Tex.

DeWitt C. Booth, Spearfish, So. Dak.

E. A. Tulian, Leadville, Col.

James A. Henshall, Bozeman, Mont.

H. H. Buck, Baker Lake, Wash.

Edgar N. Carter, Clackamas, Ore.

Giles H. Lambson, Baird and Battle Creek, Cal.

George Wiley, Meade.

MAINE.

Fish and Game.

L. T. Carleton, Chairman,	. . . . .	Augusta.
Henry O. Stanley,	. . . . .	Dixfield.
Charles E. Oak,	Caribou.

Sea and Shore Fisheries.

A. R. Nickerson,	Boothbay Harbor.
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MARYLAND.

Clarence L. Vincent,	Snow Hill.
Jesse W. Downey,	New Market.
John W. Avirett, State Game Warden,	Cumberland.

MASSACHUSETTS.

Joseph W. Collins, Chairman,	. . . . .	Boston.
Edward A. Brackett, Secretary,	. . . . .	Winchester.
John W. Delano, Superintendent of Hatcheries,	. . . . .	Marion.
Office, State House, Boston, Mass.		

MICHIGAN.

F. B. Dickerson, President,	. . . . .	Detroit.
Seymour Bower, Superintendent,	. . . . .	Detroit.
Geo. D. Mussey, Secretary,	. . . . .	Detroit.
Walter Schweikart,	. . . . .	Detroit.
H. W. Davis,	. . . . .	Grand Rapids.
J. H. Johnson, Treasurer,	. . . . .	Detroit.

MINNESOTA.

Game and Fish Commissioners (Office at Capitol).

John Beutner, Executive Agent,	. . . . .	Duluth.
William W. Ward,	. . . . .	Fairmont.
Jacob Danz, II.,	. . . . .	St. Paul.
A. L. Cramb,	. . . . .	St. Cloud.
Alfred T. Williams,	. . . . .	Minneapolis.
W. H. Morgan, Superintendent,	. . . . .	St. Paul.

MISSOURI.

Samuel T. Rathell, Chairman,	. . . . .	St. Louis.
Dr. P. L. Hurt,	. . . . .	Boonville.
J. R. Hairston,	. . . . .	Fayette.
E. P. Yenawine,	. . . . .	St. Joseph.
J. T. Crisp,	. . . . .	Independence.
Philip Koplin, Jr., Superintendent,	. . . . .	St. Louis.
M. E. O'Brien, Superintendent,	. . . . .	St. Joseph.

NEBRASKA.

Robert S. Oberfelder, President,	.	.	.	.	.	.	Sidney.
D. W. Barnes,	.	.	.	.	.	.	Valparaiso.
W. L. May,	.	.	.	.	.	.	Omaha.

NEW JERSEY.

Howard P. Frothingham,	.	.	.	.	.	.	Mount Arlington.
William A. Halsey,	.	.	.	.	.	.	Newark.
Benj. P. Morris,	.	.	.	.	.	.	Long Branch.
Richard T. Miller,	.	.	.	.	.	.	Camden.

NEW YORK.

Forest, Fish and Game.

W. Austen Wadsworth,	.	.	.	.	.	.	Genesee.
Percy L. Lansdowne,	.	.	.	.	.	.	Buffalo.
Delos H. Mackey,	.	.	.	.	.	.	Meridale.
B. Frank Wood,	.	.	.	.	.	.	Jamaica.
DeWitt C. Middleton,	.	.	.	.	.	.	Watertown.

OHIO.

George Falloon, President,	.	.	.	.	.	.	Athens.
Albert Brewer,	.	.	.	.	.	.	Tiffin.
J. C. Burnett,	.	.	.	.	.	.	Sabina.
A. J. Hazlett,	.	.	.	.	.	.	Bucyrus.
Charles E. Buroker,	.	.	.	.	.	.	St. Paris.
L. H. Reutinger, Secretary and Chief Warden,	.	.	.	.	.	.	Athens.

OREGON.

Governor,	.	.	.	.	.	.	Salem.
Secretary of State,	.	.	.	.	.	.	Salem.
F. C. Reed,	.	.	.	.	.	.	Astoria.
L. P. W. Quimby, Game and Forestry Warden,	.	.	.	.	.	.	Portland.

PENNSYLVANIA.

Fisheries Commission.

S. B. Stillwell, President,	.	.	.	.	.	.	Scranton.
D. P. Corwin, Secretary,	.	.	.	.	.	.	Pittsburg.
H. C. Demuth,	.	.	.	.	.	.	Lancaster.
James A. Dale, Corresponding Secretary,	.	.	.	.	.	.	York.
Louis Streuber,	.	.	.	.	.	.	Erie.
James W. Correll,	.	.	.	.	.	.	Easton.

Game Commission.

Wm. M. Kennedy, President,	.	.	.	.	.	.	Allegheny City.
Coleman K. Sober,	.	.	.	.	.	.	Lewisburg.
E. B. Westfall,	.	.	.	.	.	.	Williamsport.
James H. Worden,	.	.	.	.	.	.	Harrisburg.
Irving A. Stearns,	.	.	.	.	.	.	Wilkesbarre.
Charles B. Penrose,	.	.	.	.	.	.	Philadelphia.
Dr. Joseph Kalbfus, Secretary,	.	.	.	.	.	.	Harrisburg.

RHODE ISLAND.

J. M. K. Southwick, President,	. . . . .	Newport.
Henry T. Root,	. . . . .	Providence.
Charles W. Willard,	. . . . .	Westerly.
Wm. P. Morton, Secretary,	. . . . .	Providence.
Adelbert D. Roberts,	. . . . .	Woonsocket.
W. H. Boardman,	. . . . .	Central Falls.
Herman C. Bumpus, Ph.D., Brown University,	Providence.

UTAH.

Fish and Game.

John Sharp,	Salt Lake City.
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VERMONT.

Fish and Game.

John W. Titcomb,	St. Johnsbury.
Horace W. Bailey,	Newport.

VIRGINIA.

Frank Fletcher, Chairman,	. . . . .	Jenkins Bridge.
Seth F. Miller, Secretary,	. . . . .	Foster.
John A. Curtis,	. . . . .	Richmond.
George B. Keezell,	. . . . .	Keezelltown.
Pembroke Pettitt,	. . . . .	Palmyra.

WASHINGTON.

The Governor,	. . . . .	Tacoma.
State Treasurer,	. . . . .	Tacoma.
A. C. Little, Commissioner,	. . . . .	Tacoma.

WISCONSIN.

The Governor, ex-officio,	. . . . .	Madison.
Edwin E. Bryant, President,	. . . . .	Madison.
Edward A. Birge, Secretary,	. . . . .	Madison.
Calvert Spenseley,	. . . . .	Mineral Point.
James J. Hogan,	. . . . .	LaCrosse.
William J. Starr,	. . . . .	Eau Claire.
Currie G. Bell,	. . . . .	Bayfield.
Henry D. Smith,	. . . . .	Appleton.
James Nevin, Superintendent,	. . . . .	Madison.

WYOMING.

Fish and Game Officers.

Albert Nelson, State Game Warden,	. . . . .	Grosvont.
S. H. Campbell, Superintendent Fish Hatchery, District No. 1,	. . . . .	Laramie.
C. W. Morgareidge, Superintendent Fish Hatchery, District No. 2,	. . . . .	Sheriden.

[B.]

DISTRIBUTION OF FOOD FISH.

BROOK TROUT FRY.

Winchester Hatchery, April and May, 1900.

T. L. Burney *et al.*, for brooks in Lynn.
 C. H. Sargent, for brooks in Newburyport.
 E. W. Fiske, for brooks in Concord.
 H. Longley, for brooks in Shirley.
 R. W. Carpenter *et al.*, for brooks in Foxborough.
 J. D. Wetherby, for brooks in Acton.
 C. M. Kimball, for brooks in South Acton.
 C. L. Smith, for brooks in Chelmsford.
 G. A. Coburn, for brooks in Chelmsford.
 W. W. Carr, for brooks in North Chelmsford.
 G. W. Alcott, for brooks in North Chelmsford.
 G. W. Alcott, for brooks in Carlisle.
 B. C. Morrison, for brooks in Tewksbury.
 W. T. Patten, for brooks in Billerica.
 H. L. Newhall, for brooks in Billerica.
 S. A. Pickering, for brooks in Dracut.
 G. L. Huntoon, for brooks in Dracut.
 C. P. Abbott, for brooks in Groveland.
 D. F. M'Intosh, for brooks in Bedford.
 J. H. Jones, for brooks in Falmouth.

J. S. Cutler, for brooks in Orange.
 Wm. E. Fowler, for brooks in Westborough.
 S. Parker, for brooks in Wakefield.
 A. L. Clark, for brooks in Ipswich.
 J. H. Blake, for brooks in Ipswich.
 A. I. Savary, for brooks in Ipswich.
 C. T. Irving, for brooks in Ipswich.
 J. A. Blake, for brooks in Ipswich.
 H. Blake, for brooks in Ipswich.
 R. Wetherbee, for brooks in Bedford.
 A. E. Knowlton, for brooks in Gardner.
 L. G. McKnight, for brooks in Gardner.
 G. W. Dyer, for brooks in Hubbardston.
 E. E. Horton, for brooks in Gardner.
 T. L. Harlow, for brooks in Templeton.
 E. J. M'Knight, for brooks in Ashburnham.
 W. H. Frost, for brooks in Athol.
 L. B. Morse, for brooks in Phillipston.
 R. Brookhouse, for brooks in Phillipston.
 C. W. Horr, for brooks in Petersham.
 Wm. H. Frost, for brooks in Orange.

Sutton Hatchery.

A. Read, for brooks in Westfield.
 J. B. Hazleton, for brooks in Westfield.

BROOK TROUT FRY — *Continued.*

E. G. Clark, for brooks in Westfield.
 F. F. Shepard, for brooks in Westfield.
 G. H. Perkins, for brooks in Westfield.
 W. J. Morton, for brooks in Westfield.
 C. N. Lewis, for brooks in Westfield.
 S. G. Atwater, for brooks in Westfield.
 J. W. Santer, for brooks in Westfield.
 E. C. Smith, for brooks in Westfield.
 R. C. Hollister, for brooks in Westfield.
 Charles Wright, for brooks in Russell.
 S. F. Stevens, for brooks in Russell.
 R. A. Pierce, for brooks in Grafton.
 H. E. Howe, for brooks in Grafton.
 C. H. Putnam, for brooks in Grafton.
 George Pogue, for brooks in Grafton.
 F. E. Vinton, for brooks in Grafton.
 C. V. Dudley, for brooks in Northbridge.
 G. L. Gill, for brooks in Northbridge.
 G. E. Whitehead, for brooks in Millbury.
 J. R. Lincoln, for brooks in Millbury.
 A. D. Putnam, for brooks in Spencer.
 M. J. Manning, for brooks in Spencer.
 H. W. Rogers, for brooks in Upton.
 J. F. Despau, for brooks in Upton.
 R. B. Dodge, Jr., for brooks in Worcester and Holden.

Hadley Hatchery.

Geo. Holman, for waters in South Hadley and Granby.
 P. Kelliker, for waters in South Hadley and Granby.
 S. E. Bliss, for waters in South Hadley.

M. E. Fitzgerald, for waters in South Hadley.
 Thos. Buckley, for waters in South Hadley.
 F. M. Smith, for waters in South Hadley.
 M. H. Walsh, for waters in Chicopee.
 G. F. T. Babbitt, for waters in Chicopee.
 M. F. Lyons, for waters in Chicopee.
 F. L. Garrity, for waters in Chicopee Falls.
 C. M. Pettingill, for waters in Cummington and Plainfield.
 A. F. Nutting, for waters in Chesterfield.
 R. D. Bisbee, for waters in Chesterfield.
 A. M. Belden, for waters in Chesterfield.
 J. W. Jackson, for waters in Belcher-town.
 H. H. Chilson, for waters in Northampton.
 E. P. Feiker, for waters in Northampton.
 R. E. Edwards, for waters in Northampton.
 C. H. Gere, for waters in Ashfield.
 S. Spencer, for waters in Northampton and Hatfield.
 E. O'Brien, for waters in Williamsburg.
 Wm. H. Clapp, for waters in Westhampton.
 G. S. Gere, for waters in Westhampton.
 A. S. King, for waters in Easthampton.
 G. S. Buckner, for waters in Easthampton.
 T. J. Connolly, for waters in Easthampton.
 Frank S. Read, for waters in South Amherst.

BROOK TROUT FRY — *Concluded.*

Thos. J. Dooling, for waters in Holyoke.
 Wm. H. Reilley, for waters in East-hampton.
 F. S. Isbell, for waters in Easthampton.
 C. A. Sheldon, for waters in Southampton.
 W. J. Gridley, for waters in Southampton.
 C. P. Gridley, for waters in Southampton.
 G. A. Buck, for waters in Williamsburg.
 W. H. Thayer, for waters in Williamsburg.

Adams Hatchery.

A. M. Nichols, for waters in North Adams.
 E. T. Slocum, for waters in Pittsfield and Lenox.

A. W. Safford, for waters in Adams.
 G. F. Sayles, for waters in Adams.
 C. H. Hale, for waters in Tyringham.
 J. H. Cary, for waters in Lee.
 E. L. Brown, for waters in Dalton.
 W. C. Flansburg, for waters in Dalton.
 F. L. Kendrick, for waters in Colrain.
 F. C. Brown, for waters in Cheshire.
 W. E. Hoyt, for waters in Williamstown.
 S. B. Tenney, for waters in Williamstown.
 N. P. Wood, for waters in Northfield.
 J. B. Ripley, for waters in Chester.
 B. H. Hollis, for waters in Windsor.
 F. H. Pierce, for waters in Windsor.
 J. S. Moore, for waters in West Stockbridge.

In addition to the above, 1,000,000 pike perch fry, some 4,000 adult white perch and several thousands of fingerling or yearling land-locked salmon have been distributed in the ponds of the State. Both fingerling and yearling trout have also been put into brooks, and parties have been furnished the opportunity to obtain from the State pond at Winchester supplies of carp for stocking purposes. For other details, see "Fish Culture," in the report proper.

[C.]

REPORTS OF SPECIAL DEPUTIES.

The following are rather full extracts from the reports of paid deputies, and these are supplemented elsewhere by tabulated statements, showing the number of arrests made by these officials, the action of the courts, etc. Several of the reports under this head are those of deputies who served a part of the year—sometimes the greater portion—without pay, but who were on the paid force when their reports were written. In all cases, however, the arrests they made and the convictions they obtained before being put on the paid force are included in the tables under the head of “unpaid deputies.” Two of the reports in this classification are from local deputies, one of whom is in charge of the fishway at Lowell and the other in charge of Mill Pond at Yarmouth, which has been taken by the State for the obtainment of supplies of white perch to stock other ponds. Although the services of these officials are necessary to prevent violations of law and to look after the interests of the State, neither of them made any arrests. It may also be stated that no arrests were made by ten other special deputies, most of whom were to some extent local officers, although in many cases they performed important services, working with zeal and efficiency, thereby exercising a repressive and wholesome influence in the sections to which they were assigned. It is also to be noted that, when occasion demanded it, the deputies have been detailed to perform necessary work, generally more or less connected with the enforcement of law, the results of which, however, would not appear in a tabulation such as is presented in this report. Allusion is made to the distribution of blanks to fishermen, gathering statistics, distributing fish and pheasants, examination of saw mills, brooks and ponds, and attending to various other matters that consideration for the public welfare demands.

Reports of all the paid deputies are not given, for the very good reason that, inasmuch as they worked in pairs or parties, as a rule, this is not deemed necessary, particularly as those presented, taken in connection with extracts from reports of unpaid deputies, should suffice to give a fair idea of fish and game conditions in the various sections of the State.

The table embodying the results of the work performed by the special deputies shows a total of 95 arrests, 77 convictions, 2 cases pending and 16 cases where the defendants were discharged. Of those convicted, 11 cases were placed on file, and there are 5 appealed cases to be decided by the higher courts. The total amount of fines imposed was \$1,174.50, and the total paid in was \$959.50.

Taking into consideration the time covered by this report, and the period served by each paid man, the force nearly equalled nine men for one year; and the total cost of this service, including salaries and travelling expenses, up to November 30, was \$6,871.11. The estimated expenditure for December is \$602, making a total for the year of \$7,473.11.

It is of course impossible to make anything like a fair comparison with work done in the past, of the influence that has attended the patrolling of the State by an active force of paid deputies, who could be rapidly moved from place to place, as the exigencies of the service required. It may, however, be instructive to make a comparison of results as they appear in the tables, even if this fails to convey anything like a fair idea of the difference between the two systems in their respective influence upon those who might, under certain conditions, be disposed to pay little regard to laws for the protection of fish and game.

Aside from the work of one man in 1899, only 41 convictions were obtained; and it is to be noted that attention was then devoted chiefly to lobster cases, which yielded the most money to the complainant. Only 28 cases for illegal hunting of game, etc., were tried last year, and 52 convictions for illegal fishing (other than under the lobster laws) were obtained by the combined efforts of paid and unpaid deputies. Between the first of May and the last of December of the current year, the paid force has made 61 arrests for illegal hunting or the illegal sale of game, and has obtained convictions in

nearly all cases. Eighteen convictions have also been obtained for illegal fishing (other than for lobsters) and for the illegal sale of game fish.

The comparatively few cases for violations of the lobster laws indicate the increasing difficulty in the enforcement of those laws, and especially in the obtainment of convictions under existing conditions. At the same time, it is evident that, if game birds and animals and the game fish of the Commonwealth are to be adequately protected, it is necessary to have a paid force of deputies in the field throughout the year, for in no other way can the laws be satisfactorily enforced.

NANTUCKET, NOV. 5, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I never saw so small a catch of lobsters; I think there have not been a thousand lobsters taken on the island this year. Bluefish have been scarce, not so many shipped this season as in previous years. Cod are plentiful around here, and have been for the past two or three years. This is probably due to a considerable extent to the work at the coast hatcheries.

Respectfully,

JAMES A. HOLMES,
Deputy.

EDGARTOWN, NOV. 19, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have used due diligence in the discharge of my duty as a special deputy for the protection of fish and game in this vicinity. I have made but one arrest, which was for Sunday shooting. Frank H. Ricker of Cottage City was convicted before the district court, and fined \$5.00; he appealed, and was bound over to the April sitting of the superior court in the sum of \$50.

It is the opinion of many of the local sportsmen and fishermen, as well as my own, that having an officer here has prevented in a great measure a good deal of illegal shooting and fishing. I would suggest that, in order to eradicate this evil, it would require an officer who could devote his whole time to the matter.

Respectfully,

FREDERICK H. LAMBERT,
Deputy.

YARMOUTH, NOV. 12, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :— As soon as the notices at the approaches to Mill Pond became worthless, I have put up new ones. There has been no occasion to arrest anyone. Mr. Delano has taken some 4,000 white perch from Mill Pond for stocking other ponds. Partridge and quail seem about as plentiful every year about here. The weir fishermen have caught lots of squeteague this season. I have never seen so few lobsters as this year. It is too bad we cannot have a close season for five years ; I think they would be plentiful enough then. Clams are on the same road with lobsters ; in a few years more they will be a hard thing to find on our Cape Cod flats, for people dig them now not much larger than a quarter of a dollar. Scallops hold their own very well, because of the law.

Respectfully,

S. L. ROBBINS,

Deputy.

MARION, Sept. 26, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :— Since May 10 I have devoted my time to the enforcement of the fish and game laws on the waters of Buzzard's Bay, Vineyard Sound and vicinity ; have visited the pound net fishermen, furnishing blanks to all who did not have any, as well as to the lobster fishermen. Harry A. Dickerman of Taunton worked with me until July 25.

I have received several complaints of persons engaged in gill netting, all of which I have investigated, finding all but one to be rumors. In that case we could not obtain evidence enough to convict, since all of the work is done at night, and so far from shore that it is impossible to watch them, and one could not approach them by sail without attracting attention.

The boats here have caught more bluefish and squeteague this year by line than for several years past. Bottom fishing has been very good all the season, while lobsters have not been as plentiful as usual.

There has not been any Sunday shooting here this season.

Respectfully,

DAVIS D. LOOK,

Deputy.

QUINCY, NOV. 20, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :— As heretofore, our work with two exceptions has been together. We cannot say that the condition of fish, with the exception of smelts, is any better. There was a good run of smelts

in the spring, and there have been good catches this fall. Game is doing well, and the sportsmen have had good shooting.

We have been handicapped in our work on the water front for the want of a launch, and we would recommend a suitable one under the direction of the commission.

Respectfully,

CHARLES N. HUNT,
OTIS THAYER,
Deputies.

PEMBROKE, NOV. 30, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I have made no arrests, and no one has broken the laws on fish and game. Until now all my work was on Sunday. The boats are now all out of the ponds, but as soon as the latter are frozen I shall have all I can attend to every day, for people come from Brockton, Boston, Lynn and all the large towns, to fish through the ice ; they are those who do not come in summer, and they have no fear of the law. There has not been as much shooting on Sunday, all of the open season, as there was on one Sunday last year.

Respectfully,

OTIS FOSTER,
Deputy.

EAST MILTON, DEC. 1, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I have devoted my entire time to the work of this commission, and have made 43 arrests and have secured convictions in 40 cases since April 10. My work was mostly in Norfolk County until October, after which I travelled in other parts of the State, especially on Cape Cod. I have found partridges and quail in large numbers, but woodcock are very scarce. Several deer have been seen on Cape Cod, and also a number of pheasants.

The work of this commission is followed with interest by sportsmen, and I have personally received great help from several.

Respectfully,

STEPHEN W. FULLER,
Deputy.

TAUNTON, NOV. 25, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — From May 11 to July 25 I was with Deputy Davis D. Look, both of us being engaged in the enforcement of the fish laws in Buzzard's Bay and vicinity, and particularly the lobster laws. Lobsters are very scarce, and I regret to say the fishermen are tempted to send many that are undersized to Rhode Island for sale, or shipment to New York.

From July 30 to September 1, I co-operated with Deputy Burney at Lynn and elsewhere on the north shore. Since the last-mentioned date I have been trying to enforce the fish and game laws at Taunton and the surrounding towns. This section borders Rhode Island, and largely because of that, and the ease with which transgressors can cross the State line and evade punishment for violations of our fish and game laws, it is exceptionally difficult to enforce these laws in this region. Many Rhode Island hunters have been in the habit of entering this State to hunt on Sundays, but, owing to the arrests recently made, I am glad to say this practice has been stopped. Another probable cause of difficulty in preventing violations of law in the territory referred to, lies in the fact that there has been little or no attempt heretofore to enforce the fish and game laws in this vicinity, consequently hunters have had their own way, and now find it hard to submit to any restriction.

Game birds are plentiful in some parts of this section and scarce in other parts. Fish are not abundant, chiefly because there is so much float fishing in the ponds, which are thus seriously depleted.

Respectfully,

HARRY A. DICKERMAN,

Deputy.

LYNN, Nov. 20, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — In the enforcement of the laws I have endeavored, to the best of my ability, to act with fairness, impartiality and discretion toward all. At the beginning of my duties, I found a strong feeling expressed against the enforcement of laws relating to fish and game, though now, at almost the end of the season, a much better feeling exists, and I have no hesitation in saying that, with the same method of enforcement in the future, it will not be very long before every man who has the least interest in the protection of fish and game will be in hearty accord with this commission. I find very little dissatisfaction (outside of the market shooter) with the laws as they have been enforced this season. The law prohibiting the sale of ruffed grouse and woodcock has had the effect of almost entirely stopping the snarers and market shooter from carrying on their work. In all my searches in the woods I have failed to find a line of new snares; they all appear to me to be last year's work. I have had some of the oldest hands in the business interviewed, and they all say the same, "No market and too much risk."

Observing people that I have talked with say they have not seen so many song birds for ten years past as they have seen this season. The worst enemy of the song bird, which we have to contend with is the Italian, who shoots everything which has feathers.

There has been a large increase of our game birds, particularly quail. The Lynn Fish and Game Protective Association liberated a large number last spring, which bred well and raised large broods, thus giving good shooting to local sportsmen. There will be a large number left over for breeders for next year. The association will continue the good work by liberating more birds next spring. Four pairs of Mongolian pheasants from the State aviary were also liberated in Lynn park reservation, and, as they have been seen often with broods of chicks, it is concluded they are doing well. They are also doing well in Danvers, Topsfield and Middleton, and there are some in North Beverly and Hamilton.

We have only a few partridges near the city, but in Saugus and Lynnfield good shooting can be found. The only fault the sportsmen find with the present bird law is, that the law goes off quail too early; many broods were found the first of the shooting season that were too small to kill. I myself have found them not much more than half grown. I know of men who, having found the birds so small, refused to hunt them until after the middle of October. We have been badly handicapped in the enforcement of the lobster law by not having a boat in which to follow those fishermen who defy the deputies to catch them. Their methods are to land on the islands, scald the "shorts" and pick the meat out, cut the meat into small pieces, and sell it to hotels and restaurants, where it is used for fried lobster. Another method is to boil the "shorts," pick the meat out and sell to dealers for picked lobster. Any one going into a fish market along the north shore to-day can find plenty of evidence, by the sight of the small tails and claws on sale as picked lobster. I have spoken to a number of fishermen and dealers, who are in favor of a close season. I believe a close season is the best thing that could happen for the protection of the lobster.

We have but two fishways, and those are on Saugus River. I visited the owners of the mills last spring, and called their attention to poor condition of the ways, which were subsequently repaired.

The hunters in this district have lived up to the law very well. Sunday hunting has almost entirely ceased, and I do not hear of any game being sold in the markets about the city.

Respectfully,

THOMAS L. BURNES,
Deputy.

GLOUCESTER, NOV. 23, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — Partridges and quail are increasing in the woods on Cape Ann; flocks of quail have been seen near Cape Pond. Plovers are frequently seen in large flocks on the low lands. Rabbits are in-

creasing very fast, due, it is thought, to the protective law of 1897. Hares are also increasing.

Roach are more plentiful than other fish in ponds of Gloucester and Rockport. Yellow perch are also abundant, but black bass and pickerel are scarce. Smelt have nearly abandoned Gloucester harbor, and very few have been taken. Lobsters have been scarce this year.

The special legislation of 1897, for Cape Ann, meets with general approval, but some are discontented because ward 8 was not included in the act. It is common for men and boys to run dogs on the Cape and kill young rabbits and hares in that way. There is talk here of asking the Legislature to amend the act of 1897, so that it will be unlawful to run dogs in the woods on Cape Ann.

Respectfully,

JOHN J. HOWLETT,
Deputy.

HAVERHILL, Nov. 19, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have frequently visited Lawrence, Lowell, Boxford, Newburyport, Dracut, Plum Island and Salisbury Beach, beside carefully looking out for my own city of Haverhill. I believe that portion of my district which I have been able to visit has been remarkably free from infractions of law. In several instances I have come suddenly upon parties who were innocently violating a provision of the law regarding the right date of fishing in certain localities. I at once approached them and explained wherein they were doing wrong. They promptly desisted, and I will vouch they will not again be found derelict. I discovered two instances of possible short lobsters, but they were so near the legal length that it was not wise to make arrests, nor would it be justifiable under the circumstances. I have made no arrests in any cases, and yet have spared no effort to be vigilant, even to the running down of a deer story, and finding, after a long day's trip, that the deer was legally shot in Maine. I also rendered assistance in securing the conviction of a party using a ferret. I have deemed it important to keep a close watch over partridges, and have spent much time in the woods enforcing the law thereto.

I feel it would be advantageous if modifications could be made in the laws, so that the time for hunting squirrels and rabbits should harmonize with that for shooting partridges, and thus hunters would be prevented from shooting one kind of game while professing to be hunting for another.

I find that since Johnson's Pond and Crystal Lake in Haverhill have been stocked with white perch, they have increased very much,

and the people, especially around Johnson's Pond, have been very careful to observe the restrictions of the law.

Respectfully,

ROBERT A. RICHARDSON,

Deputy.

LAWRENCE, NOV. 19, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I sent, agreeable to your permit, 100 sea lampreys to F. W. Wamsley at Wood's Hole, 100 to Prof. L. S. Ross of Iowa, and 50 to Professor Wilder of Cornell University.

After I had written my report the river came up quite high, but it is going down again, and unless we have some heavy rains will be quite low by the end of this week or first of next. I think it would be a very good idea, if the river is low, for you to come up here and see the entrance to the fishway; think it could be improved. Also, there is a sewer that for some months has been discharging its contents into the pool at the end of the fishway. Mr. Hale, the first assistant engineer of the Essex Company, has called the city's attention to this a number of times, but they have done nothing about it. All they have to do is to clean out the channel. I think this should be done before another season.

Fish commenced to appear in the fishway in April. In the month of May and the first part of June there was a large run of lampreys, with some suckers and chubs. The lampreys stopped running the 20th of June. On the 12th of June flashboards were set the whole length of the dam, stopping all water from running over. While there was no water coming over the dam I saw two salmon in a large pool at the foot of the dam, and some alewives running up in a little stream in the rocks toward the south end of the dam. Shut water out of the fishway on June 28, there being no fish in it and no water coming over the dam. The river was very low all summer; there was a slight rise in October, and there was a small run of suckers and chubs at that time. Shut water out of the fishway again October 24, and it has been shut out up to this time, November 9.

Respectfully,

THOMAS S. HOLMES,

Deputy.

SPENCER, NOV. 10, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have spent considerable time looking after the trout streams in the central section of the State, whereon were located mills that discharged sawdust into the brooks, thus injuring the trout. A large majority of the people are in favor of preventing the pollution of our streams by sawdust.

I have enforced all of the laws for the protection of fish and game to the best of my ability, especially those prohibiting Sunday fishing and hunting. The people in Spencer, Paxton, Oakham, Charlton, the Brookfields and vicinity, realize that the commissioners mean to enforce the laws.

Trout have been more than ordinarily plentiful in this vicinity during the present year, due to the brooks having been well stocked by the State. The people at Uxbridge, however, complain because trout less than six inches long are sold.

There are more quail in this locality this year than for a long time. Partridges are also more plentiful this fall than in recent years. Deer are gradually working in here; quite a number have been seen lately.

Sunday hunting has been largely if not wholly stopped. On Sunday, September 23, I went over twenty-five miles of as fine hunting ground as there is in the State, and not a man nor gun was to be seen or heard.

Respectfully,

A. D. PUTNAM,
Deputy.

PALMER, Dec. 1, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have enforced the law in this section to the best of my ability. While I have, perhaps, made many enemies, I could not do otherwise than my duty; if I have dealt fearlessly with violators of the law, I have acted honorably. I have made it a point to inform the general public relative to the fish and game laws, and have had the laws printed in the newspapers, particularly the law forbidding the sale of partridge and quail. I have personally notified persons who I thought were breaking the law, and assured them that if they continued in their work they would not be spared. The territory which my district covers is one of the best hunting sections in central Massachusetts. Go a distance of ten to twenty miles in any direction and you will find game plenty. The wide area which I have had to cover the past year, and particularly the past six weeks, in pursuit of violators of the law, has taken much time, but my efforts have met with considerable success. I have had to visit some sections several times but was rewarded after perseverance and patience. I have arrested five persons, one for using a net in a pond, the case being placed on file. This action has had the desired effect of stopping seining. This work was being carried on to such an extent that fish of all kinds were being exterminated in the pond. The other four were arrested for Sunday hunting, two of whom paid fines amounting to \$20, the other two being discharged.

While there are many true sportsmen in this section, there are many who call themselves sportsmen, but who are not, and who would violate the law at the first opportunity. To the latter class of hunters I have paid particular attention, and have made it a point to see that they lived within the letter of the law. Regarding the open season on rabbits and squirrels, September 15, I think it is bad, as it gives the pot hunter a chance to get into the woods and shoot birds, when, if the law on all game was closed until October 1, it would work much better. I am satisfied that the law, so far as I am aware and from what I can learn, has been pretty well lived up to.

This section abounds in game of all kinds, and this season has been a very fruitful one. Scarcely a hunter returned without well-filled bags of game. Partridge, quail, woodcock and gray squirrel have been plentiful, and, taking the season as a whole, it can be called a success. Another sport in this section is the slaughter of rabbits by ferrets. There has been some of this work done already, but the time is not yet ripe, and when snow appears it will be at its height. Trout catches in this section this year have been beyond anything in previous years. Many tipped the scales at two pounds, one and three-quarters, one and one-half and one pound. Bass have been very scarce. Deer have been seen in numerous places, accompanied by their young. Others have been seen by farmers grazing with their stock in the pastures, no attempt being made to harm them in any manner.

There is work in this section the year round for a paid deputy, who can at all times find plenty of work to do. I have visited Springfield, Belchertown, Monson, Brimfield, Warren, Ware, Wales, Ludlow and Wilbraham, in answer to requests from sportsmen who complained of violations of the fish and game laws. I have been given every encouragement in my work by sportsmen in all near-by towns, who say that if there is a law it should be lived up to. Others are sore over the new law prohibiting the sale of game, because it shuts off their market shooting. I think that, if the law is rigidly enforced for the next three years in all sections as it has been in this, game will be abundant, lovers of the sport will be more than pleased with the result, and there will be but very little cause for complaint of the strict enforcement of the law.

Respectfully,

JOHN F. LUMAN,
Deputy.

LEE, Dec. 1, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — During my term of office I have kept well informed in regard to the observance of the game laws in this and adjacent

towns. Although I have made no arrests, there are several parties who, having had no regard for the law heretofore, have since my appointment refrained from snaring birds and from Sunday hunting.

One of the best sections of country for partridge hunting in this county lies easterly of my premises, extending about ten miles, and abounds in all kinds of game, including deer. I gave particular attention to this section of country. More than sixty hunters have passed over my farm on their way to these hunting grounds. In many cases they have left their horses and bicycles at my place. In all this section I know of only one case where snares were set for partridges. It was not discovered who set them, but the snares were destroyed, and no attempt was made to re-set them. Very few partridges have been shot, and I have never known them so scarce as this year. I have kept myself in constant communication with friends in Becket, Otis, Sandisfield, Stockbridge, Great Barrington and Tyringham, and I have not heard of any case of snaring or of the sale of birds. I know that certain persons in Lee, who have in former years had partridges on their tables occasionally, have not seen one this year. A grocery man here received an urgent request from Mr. John Sloane, the New York merchant, at his summer home in Lenox, for a "present" of one or two partridges (Mr. Sloane was recovering from a serious illness), and I know the man could not grant the request, though he searched Lee and adjoining towns for that purpose.

I have given special attention to Sunday hunting. For several Sundays preceding my appointment some lawless Italians were seen shooting robins in the meadows below the marble quarries in this town. My attention was called to it, and they have not fired a gun on Sunday since. Last Sunday, November 25, I heard reports which led me nearly to the Stockbridge town line (three miles from home). I found a force of men blasting rocks. On Sunday morning, November 18, word was brought to me that three men had gone hunting toward Becket. I immediately started in that direction. Finding their footprints in the snow, I followed them and watched them till three o'clock P.M., when they started on their return to Lee. I did not hear them shoot at all, and they had no game. I knew one of them, he was once in my employ; and I got the names of the other two. Of course I could not convict them under these circumstances, but they will not hunt on Sunday any more.

Although ordinarily a regular church-goer, I have, since my appointment, been roaming the mountains, endeavoring to promote a better observance of the Lord's day, and at the same time to do something for the preservation of game.

Respectfully,

CHAS. N. FOOTE,
Deputy.

FLORIDA, Nov. 16, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— There were not so many trout this season as last year, but I think it was due to the high water of last winter, for the brooks were well stocked when winter set in. This fall, however, there are nearly as many small trout as usual. I think deer are breeding fast, for they are seen almost every day, and are tame. Partridge are very thick; the old settlers say they never saw more than there were when the open season commenced, and only a few have been killed. Rabbits are growing scarce, I am sorry to say.

Respectfully,

E. R. BURNETT,
Deputy.

NORTH ADAMS, Dec. 27, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I have devoted my entire time to the enforcement of the fish and game laws since my appointment as a special deputy on May 3. I have arrested seven persons on various charges and have secured conviction of all of them.

Deer are very plentiful about here. On May 7 a deer was found dead in Clarksburg. I investigated the case, found it, and it looked as though it had fallen from a high cliff. A few days later a deer was chased into Zylonite by dogs, and died from exhaustion. I could not learn who the owners of the dogs were. In June, another deer was chased into a marble quarry by dogs, and was captured and kept for a few days; I then took it into the woods and liberated it.

The trout season has been very good in this section of the State, considering the very high water that we had last January. The brooks that we have stocked were all in good shape during the summer, and none of them have gone dry. There have been some great catches of pickerel at Cheshire through the ice. It is reported that there have been 400 to 500 pounds taken out in a single day. Partridge and woodcock have been very plentiful this season; also gray squirrels and rabbits.

The new law relating to the sale of birds has been lived up to, and I have found no violations. I have had the game laws inserted in all papers in the western part of the State, and also have had them posted in post-offices and other public places. The sporting men are very much pleased with the new law. There has been very little Sunday shooting in this part of the State this year. I have found very few snares this fall; other seasons I have found numbers of them.

Respectfully,

A. M. NICHOLS,
Deputy.

[D.]

REPORTS OF UNPAID DEPUTIES.

The following extracts from reports of unpaid deputies in various sections of the State will serve to convey a rather comprehensive idea of the condition of fish and game throughout the Commonwealth, and will also indicate what has been done, by moral suasion and otherwise, to prevent violations of the fish and game laws. The most noticeable feature of these reports, aside from the influence of the game law enacted at the last session of the General Court, and the increased tendency to observe the laws, is the evident desire, on the part of many of these deputies, to forego all personal advantage that might accrue to them from the obtainment of such part of the fines as they would be entitled to, and to endeavor to persuade people to refrain from transgression of law. At the same time, however, the tabulated statement of arrests and convictions shows conclusively that there has not been a failure to use stern measures in instances where no other course could be adopted, even though in some cases the deputy has, of his own choice, failed to profit by his effort to maintain the majesty of the State and a respect for its fish and game laws.

It is impossible not to appreciate the devotion and unselfishness that prompts one to undertake a duty which at best must be considered a labor of love, for the remuneration can never be more than a pittance, and usually the only reward is the consciousness of having made the best effort possible in the public interest and for the obtainment of conditions in this State that are generally conceded to be desirable.

In order to bring these reports within a compass that will admit of their publication, it has been necessary, in nearly every case, to limit them to the salient points, which are of general public interest.

As will be seen by the tabulated returns, 90 arrests have been reported by unpaid deputies and 85 convictions have been

obtained, with fines amounting to \$975 in the aggregate. In 5 cases appeals have been taken, 1 case was continued and 4 have been placed on file.

This report is incomplete, however, because of failure of deputies, whose appointments have been revoked, to report; but from information at hand it is probably safe to assume that some 20 to 25 convictions more than appear in the tables have been obtained, with fines aggregating from \$300 to \$400.

(1) *Eastern Section of the State.*

NANTUCKET, Nov. 5, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — Fish of all kinds have been scarce except the mackerel, which was very abundant this season. Lobsters are almost a thing of the past. Game remains about the same. Sea ducks and black ducks are very plentiful this fall.

Respectfully,

EDWARD F. SNOW,
Deputy.

NANTUCKET, Nov. 9, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — Our ponds are full now, and perch are plentiful. Hummock Pond was drained in August for gunning purposes, and many fish and eels died. Ducks are more plentiful than for years. There is quite a number of quail on the island. Lobsters have been very scarce, — less and less every year.

Respectfully,

W. C. DUNHAM,
Deputy.

COTTAGE CITY, Nov. 12, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have arrested five persons, two of whom were convicted for Sunday fishing; two, arrested for illegal fishing, were discharged; and one case is still in court, it having been continued.

The pinnated grouse is rapidly disappearing. I know the parties who are killing them, but can get no direct evidence. I spent three days watching a party who was snaring pheasants at a place called Deep Bottom, on the south side of the island, but I am so well known that if I am seen going in any particular direction the violators of game laws are notified at once. If a stranger could be sent here, he might make some important arrests. Quail are increasing.

Respectfully,

E. B. ANDRUS,
Deputy.

TISBURY, Nov. 18, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have not detected any one violating any of the fish or game laws during the past year.

In April a fire was accidentally started on what is known as the plain lands. It extended over ten square miles, and doubtless killed quite a little game. Rabbits probably suffered more than any other kind of game, though quail, pheasants and prairie chickens inhabited the country burned over.

I liberated 175 quail in March, which I secured from South Dakota; they remained and nested well, very near where they were put down. Woodcock have been exceedingly scarce. I never remember a year when so few have been seen. Partridges were introduced on this island about fifteen years ago, but for some reason unknown to me they do not thrive here. In the country best suited for them we have a great many ticks. It is possible they keep the birds down. The pheasants which were liberated by a resident of the island some years ago are doing well. I think a number of them are shot each year, and if it continues I hope to make an example of some one before long. Quails wintered and nested well, but October 1 is certainly too early to shoot them. Many of the covies are very small at that date.

By a special act of the last Legislature Dukes County was permitted to offer a reward for the killing of hen and pigeon hawks. There have been 285 killed during the present year, for which \$562 bounty has been paid.

The prairie chickens (or heath hens) on this island are destined to soon become extinct, unless something is done for them at once. I recommend that the fine be \$50 or even \$100 for killing one.

Respectfully,

JOHN E. HOWLAND,
Deputy.

EAST WEYMOUTH, Nov. 17, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—In making this report of work as deputy for the enforcement of all laws relating to fish and game, let me first call your attention to the field I have attempted to cover, and its importance. Weymouth is a town of large area, and, as related to birds and fish, is hardly of secondary importance to any town in the State. We have several hundred acres of wood and unimproved land, which is specially adapted to breeding and feeding partridge, quail and kindred birds. We have two lakes or ponds which from the earliest

settlement of the country have afforded the finest shooting of any inland waters in the State. We have several miles of streams, tributaries to these lakes, which, while not stocked with trout, might be utilized for trout breeding and raising to good advantage. The lakes or ponds have always afforded fair fishing for pickerel and perch, and within a few years have been stocked with black bass, which have done well, and we think other fresh-water fish might be successfully planted. The fishing interest, however, which is of most importance, and should be most carefully guarded and protected, is the smelt fishery. We have two arms of the sea making well up into the town, and probably more smelts spawn in Weymouth Fore River and Back River than on the entire Massachusetts coast beside.

Thus much in regard to the field; and now in regard to the law and its enforcement. The protection of song birds is a matter in which we are deeply interested, and, by following the woods and fields, think much good has been accomplished, as we had more song and insect destroying birds the past season than for many years before. Have made two arrests and convictions for violation of the bird laws in the past year.

We have made strenuous efforts for the suppression of seining and scoop-netting smelts; but the territory to be covered is a hard one, and the means at hand have not always been equal to the emergency. As I have said, this is not entirely of local interest, for right here the entire Boston harbor's fishing is affected, as a single night's seining will destroy millions of unborn fish. These rivers are where they run up from early March to the middle of April for the purpose of spawning. We succeeded in making two arrests and convictions for violating the smelt law, and have something of an outfit of scoop nets, poles and other implements left by poachers in their haste to avoid the officers.

The expense of this work has been borne by the East Weymouth Fish and Game Club, and an appropriation from the town made for the purpose of enforcing the law. We would urge, however, that a wider interest be taken in this particular matter, especially for a few weeks during the spawning season.

In brief, we think here is a good field for work in stocking our woods with game birds, our inland waters with food fish, and a vigorous prosecution of violators of the smelt law.

Respectfully,

M. E. HAWES,
Deputy.

WEYMOUTH HEIGHTS, NOV. 5, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I looked after smelts in Weymouth Fore River and Back River, together with officers Hunt and Thayer, in the spring, but we were unable to detect any one illegally taking them. Smelts are very abundant this fall, as the fishermen can testify. Quail are plentiful, and there are some partridges. Song birds are abundant, and there has been very little shooting of these birds.

Respectfully,

B. F. RICHARDS,
Deputy.

HINGHAM, NOV. 22, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — The town still allows me the appropriation of \$250 for the protection of smelts in Weir and Weymouth rivers. From March 15 to the last of May there were two officers on each river. We found in Weir River quite a large body of smelt, but we did not find quite so many at Weymouth River. There has been a large amount of smelts this year, but they have been very small in size. There has been very little shooting in the woods, as quail and partridge are scarce.

Respectfully,

W. I. JAMES,
Deputy.

COCHESSET, OCT. 29, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — There has been a decided improvement in the observance of fish and game laws during the past year. Fish do not seem to be as numerous this year as formerly ; game not very plentiful. A number of pheasants have been seen about, and they seem quite tame. Deer have been seen near here, feeding, also in Raynham, but no attempt has been made to capture them, as far as I can learn. No arrests have been made.

Respectfully,

D. R. SIMMONS,
Deputy.

BRAINTREE, NOV. 16, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — It has not been necessary for me to make any arrests, and I have not heard of any violation of the game laws. Last spring I was informed that parties were catching smelt with nets and various other devices at Weymouth during the spawning season.

This fact was reported to you, and the regular wardens were notified and reported to me that they were watching the brook in that neighborhood.

Respectfully,

F. R. SMITH,
Deputy.

ROSLINDALE, NOV. 19, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—As far as I know, Sunday shooting is stopped altogether in this vicinity; that means from Canton to Dedham and Forest Hills. I have had no occasion to arrest anybody, except three boys whom Deputy Muerer and I found hunting Sunday in Dedham woods. We gave them a good scare and sent them home, and I don't think they will try it again.

Since the birds got a chance, partridge and quail have increased wonderfully around here.

Respectfully,

ALFRED GREENQUIST,
Deputy.

BOSTON, DEC. 28, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—As deputy commissioners, employed by the Rod and Gun Club of Massachusetts, we submit the following report. We are glad to be able to inform you that the professional snaring of ruffed grouse in this State is practically at an end. We have patrolled the State during the whole season, from end to end, without finding any new snares, excepting in one case, where they were set on a farmer's own land by his son. The men who have in the past made a business of snaring—most of whom have been arrested by us and fined during the last four years—are now devoting their time to legitimate work.

We have received, through the secretary of the club, a number of complaints from all over the State during the past year of illegal fishing and shooting. All these cases have been promptly investigated. In many cases the complaints were entirely unfounded, and in most of them a timely warning was sufficient to put a stop to the evil complained of.

There is still some seining of smelt on the south shore by the same parties we watched for last year, which we hope to be able to prevent in time. These seiners are so well equipped and organized that it is very difficult to catch them in the act.

Ruffed grouse and quail are more plentiful in most of the sections we have visited than ever before. In our opinion, they will increase

in numbers every season, unless winter-killed, so long as the game laws of the State are enforced.

Respectfully,

W. E. QUIGGLE,
W. S. WHEELER,
Deputies.

WAKEFIELD, Nov. 2, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — There has been no trouble this year from violators of fish and game laws. The lakes in Wakefield have been carefully watched. The fishing in them has greatly improved the last three years — pickerel from one to four and one-half pounds, bass from one to five and one-half pounds, perch large and numerous. Partridge and quail are more plentiful than for a number of years ; gray squirrels and rabbits scarce.

Have broken up Sunday shooting and fishing. The laws have been well respected. The posters you sent me were put up in suitable places. Owners of woodland are interested in game laws, and have posted notices forbidding trapping or shooting. This keeps many out of the woods, and is a great protection.

In May I got 3,500 trout fry from the State hatchery, and put them in the Saugus River at Wakefield, where they were doing well in June.

Respectfully,

SAMUEL PARKER,
Deputy.

WAKEFIELD, Nov. 5, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I have made no arrests, having known of no occasion for so doing. Have had one report of a suspected violation in regard to shooting insectivorous birds, but no grounds for action except to warn the parent of the suspect, who was a minor, and have heard no further complaint. I have put up cloth copies of the laws in suitable places. Have patrolled woods and ponds as often as circumstances would permit, and kept a watchful eye and attentive ear toward the protection of local game, fish, and song and insectivorous birds. I think the laws have been less violated this season than for some years, and am glad it is so. Investigated reports of shooting heard on Sunday, and found it was caused by persons at pistol practice, who will not be likely to take any chances of trouble again.

From all I can learn by my own observation and reports of other sportsmen, partridges are more numerous than for several seasons about this town and the near-by towns. Quail, too, have been very frequently seen and heard, more so than last season. Ducks have

frequented the lakes here in greater numbers than for some years. The fishing on both Quannapowitt and Crystal lakes has been very good for pickerel, white perch (on Crystal), and fair for black bass.

Wakefield appropriated money, and citizens donated more, for the suppression of the English sparrow; this has been expended by one of our public-spirited citizens, Mr. Rufus Kendrick, who reports the destruction of several thousand birds and eggs. The increase, consequently, of our native song and insectivorous birds has been very noticeable, indeed, and it is hoped the good work will be continued.

Respectfully,

ARTHUR S. ABORN,

Deputy.

LYNNFIELD, Nov. 8, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have had no trouble this year with fishermen. There are more partridge than I have seen for years. Woodcock and quail are rare. I have made no arrests.

Respectfully,

GEORGE WILLIAMS,

Deputy.

BURLINGTON, Nov. 13, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have made no arrests this year, but have warned several parties who were apparently gunning Sundays. I also had a party of three take their traps out of a pond one Sunday, and I read them the law. They were fishing through the ice. There is certainly less gunning here Sundays since it has become known that I was a deputy. Now, once in a great while, I hear a gun on Sunday; before I was appointed, guns could be heard every Sunday almost the year through.

There are quite a number of quail about here, also a number of grouse. Have seen very few rabbits. Gray squirrels are increasing. I have been out lately looking for snares, but find none. My time is pretty well occupied, but what time I have, and especially Sundays, I devote to the interest of the game in this locality.

I have seen a bird three times lately that I think is a golden pheasant. It is between the size of a quail and a grouse, nearly as large as a grouse, but of a different build. I have been unable to get near enough to be sure. It seems to be in about the same place every time, and gets out of the way before I can see it clearly. I have posted the copies of the laws sent me by the Board.

Respectfully,

HARRY L. HASKELL,

Deputy.

BEVERLY, Nov. 12, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — Partridge are quite plentiful this fall. Pheasants have done well. I have seen and heard of some good broods. If we can keep the pot hunters from killing them, they will be a great success in five years from now. Quail were too small to shoot the 1st of October.

I have put lots of time into this work; have made no arrests, but have stopped parties from fishing through the ice and from shooting on Sundays. What it needs is a man to put his whole time into this work; that would have the right effect. Violators of the fish and game laws know I am at work every day, so have no fear of me.

Respectfully,

EZRA S. PIERCE,

Deputy.

BEVERLY, Nov. 12, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — Quail are more plentiful than for five years past. Partridges are few in number. Pheasants are increasing, I judge, by the number I have seen in my travels. Woodcock are about the same, and few bagged. Very few trout caught.

The Sunday law has been abided by to a greater extent this year than since I have been deputy, which is a matter of five years. The way the commission has handled the protection of fish and game has been appreciated by lovers of sport in territory which I cover.

Respectfully,

F. G. LEFAVOUR,

Deputy.

BEVERLY, Nov. 5, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — This summer I watched four bunches of quail, with about fifteen in each bunch, and up to the first of October I don't think one bird had been taken.

I have kept strict watch of Sunday gunners, but have found no violation in this line; also watched smelt fishing in the spring, and spent several nights in watching brooks in this vicinity, but have seen no one violating law. One day I came across about a dozen snares, and destroyed them. I had one complaint of a party using a seine in Bass River. I investigated the case, but failed to see the party.

I searched the Cabot House, Beverly, for mutilated lobster, on July 20, but failed to find any.

Quail have increased, but partridges are scarce. Gray squirrels are plenty this year. Trout are also scarce.

I have made no arrests, as the sportsmen have respected the law in every detail, for which they should have credit.

Respectfully,

GEORGE W. GOLDSMITH,
Deputy.

WENHAM, Nov. 19, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—There has been no Sunday gunning or other violation of the laws, therefore I have had no occasion to make arrests.

There are more partridge and quail in this part of the county than there have been for years, while the smaller birds seem to decrease every year.

Respectfully,

FRED. S. KNOWLTON,
Deputy.

MANCHESTER-BY-THE-SEA, Nov. 16, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—Arrests and convictions I have none to report. Have read the law to many people whom I found fishing on the Lord's day, but have never found the same party the second time. Sunday hunting is a rare thing around here, except that last Sunday a shot was fired that killed a pheasant. I know the party, but have not enough evidence to have him prosecuted.

Woodcock, pheasants and song birds are plentiful; all other game scarce. I think we should have a close season, like that which they have on Cape Ann and in the town of Essex. If Manchester, Beverly, Wenham, Hamilton and Ipswich would join, this would make it complete, and give the game a chance in this section of the State.

Respectfully,

HERMANN THIEMANN,
Deputy.

IPSWICH, Nov. 12, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have made but two arrests this year, both for illegal fishing. There has been no trouble with Sunday gunners, and I hope there will be none next year.

Partridge and quail are plentiful, for many were not killed last year. I have seen one bunch of pheasants this year that numbered fourteen birds, all of which were small.

Respectfully,

JAMES A. LORD,
Deputy.

AMESBURY, NOV. 9, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— Arrests, none; complaints, none. Game birds fairly plentiful. The law restricting sale of ruffed grouse and woodcock is strictly lived up to. Our local expressmen promised me not to handle them, and I have reason to believe they have kept their promise faithfully. I have not yet heard from the pheasants I liberated last spring. Fishing is very good. Short lobsters are not handled by our local fish dealers.

Respectfully,

F. R. WHITCHER,
Deputy.

AMESBURY, NOV. 18, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— Partridges are very scarce, and it was high time that a new law was put on. We have four or five pot hunters that used to gun for the market every day in the open season previous to this fall, but this autumn they have not averaged one or two days a week, and that must mean a number of hundred birds saved, because one man alone killed over two hundred and fifty birds last year, and he has not killed twenty-five this fall, at the most. They were planning to ship them to Boston from Seabrook, but I told them, after I found out their plan, that I should spend all my time watching them, and it must have frightened them. A friend told me, two days ago, that one of them tried to sell five partridges to the man that has always handled game birds, but he did not dare to buy them.

Respectfully,

LAURENCE FREEMAN,
Deputy.

FRANKLIN, NOV. 10, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— We have had less Sunday hunting than for a number of years past. I have been in the woods every Sunday, when it did not storm, for the past two months. I posted up the fish and game laws in a number of places in town, and gave some to those who are interested. Game is increasing; partridge are very much on the increase over last year. I have made no arrests.

Respectfully,

S. W. NICKERSON,
Deputy.

LOWELL, Nov. 9, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — During May there was a large run of eels here at the fishway ; in June a lot of alewives were seen ; in July I saw five salmon near the fishway, also saw eight black bass near the dam, and a large number of chub, suckers, yellow perch and hornpouts. During July I saw thousands of young eels, from four up to six inches in length, in the small pools near the fishway. If we could have a new fishway here, it would be a great improvement.

I have posted notices allowing no fishing within four hundred yards of the fishway. I had one man up before the court for taking fish at the fishway, and he was found guilty and fined. I have found no nets or set lines in Tyng's Pond this year, and the white perch fishing has been very good. Have taken up and destroyed four set lines in Mud Pond, which is connected with Tyng's Pond. The fishing in Leache's Pond in Chelmsford has been very good this summer ; this pond was stocked three years ago. Nabnasset Pond has also been fished a great deal, and some fine strings of pickerel have been taken. Great Pond, in North Andover, which is now open to the public, has produced some splendid strings of pickerel and white perch, and some very large black bass have also been taken. Several parties here are getting ready for winter fishing.

There have been no complaints about Sunday shooting. The new law, prohibiting the sale of partridge and woodcock, is a bad blow to pot hunters, but a good thing for sportsmen. Partridges seem to be quite plenty this year, but very wild ; woodcock scarce, but there are more quail here than last year. Gray squirrels and rabbits are not very plentiful. I have given notice that all persons using ferrets in hunting rabbits will be prosecuted.

Respectfully,

GEORGE T. SPENCE,
Deputy.

(2) *Central Section of the State.*

WEST UPTON, Nov. 24, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — There has not been more than one-third the number of birds killed this season as usual. There is a good number of partridge and quail at the present time, and if we do not have a hard winter there will be plenty for breeders next year. I was kept busy the last two weeks in September, when the rabbit and squirrel hunter started out. I have not made any arrests yet. Sunday hunting here is one of the things of the past. I am watching a party that hunts

rabbits nights ; I believe a ferret is used. It makes it hard work to protect our birds when other game can be hunted. I hope something will be done this winter in regard to the rabbit and squirrel law.

Respectfully,

DANIEL A. WARREN,
Deputy.

MILLBURY, Oct. 24, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I have kept a vigilant watch on Dority Pond. This pond was stocked with white perch two years ago. I have re-posted the notices and have enforced the regulations on fishing. I have investigated many complaints of violations of fish and game laws. Have made no arrests. I have posted the cloth posters obtained from the Board in hotel lobbies and public places in this and near-by towns.

Last April I placed 5,000 brook trout in neighboring brooks. The brooks have been very low this season, but I think the trout lived. I have also placed 250 yearling black bass in two ponds ; these were the large-mouthed variety, — the ponds already contained the small-mouthed bass. The latter did not seem to thrive. I am in hopes the large-mouthed bass will do better. White perch are commencing to be caught from Whitin's Shop Pond. This pond was stocked about four years ago.

I think partridge are scarce. I hear constant complaints from sportsmen to that effect. Quail are plenty, more so than for many years. I have not found many woodcock this year. As they are a very uncertain bird, this does not necessarily indicate a scarcity. I do not think the flight of birds has yet arrived.

There are still several wild deer in Millbury. They are frequently reported. There have been no complaints of any person molesting them in any way. One buck seems to make his headquarters on the same farm, not one mile from the centre of the town.

Respectfully,

GEORGE E. WHITEHEAD,
Deputy.

MILFORD, Nov. 12, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — Quail are more plentiful than for the past three or four years. Partridge and woodcock about as usual. There have been no cases before the local court for violation of any of the game laws. There has been much Sunday shooting, but it is a hard matter for one man to get evidence that will convict.

Respectfully,

WM. N. PRENTISS,
Deputy.

LANCASTER, NOV. 17, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—During the past year I have posted copies of fish and game laws, and while trying to encourage and cultivate a healthy protective sentiment, which I feel confident is growing in this community, I have been on the watch for every violation of our game laws. I have made no arrests, but have sent home several Sunday gunners and fishers. There is plenty of work for the right man in this section, if he could put his whole time into it in the season. The snaring of game is almost unknown here. From all that I can learn fishing is very good. Gray squirrels are plentiful, also quail. Partridge and woodcock are scarce. Two pheasants and five deer have been seen during the year.

Respectfully,

A. J. KENNEDY,
Deputy.

WORCESTER, NOV. 6, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I hereby submit my report for year ending Nov. 5, 1900. Excepting three months, from June 17 to September 17, I have been attentive to the protection of fish and game, and personally I believe public sentiment is increasingly demanding an enforcement of our laws, as well as a better regard for the same. I have worked mostly with Timothy McCarthy of Leicester. I have personally measured many lobsters, and with few exceptions, have found them all right. I have talked to many children of the importance of saving instead of destroying our feathered songsters; in only one case have I found it absolutely unavoidable to arrest boys. Partridges are very scarce in all localities where I have been. Quail are plenty. I know personally of two flocks of pheasants that have grown wild; one of five, the other of eight young birds.

With the exceedingly dry weather we have had the past summer, I think the trout have largely died in all small brooks.

Respectfully,

HENRY A. MOWER,
Deputy.

LEICESTER, NOV. 8, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have spent all the time I had to spare, and will try and do all I can for the protection of both fish and game. Partridge are very scarce; there are some quail and one brood of

eight pheasants was hatched out here this last year, and they have not been troubled as yet.

Respectfully,

TIMOTHY MCCARTHY,
Deputy.

SPENCER, NOV. 20, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I informed Mr. Putnam that I would do all I could to help him enforce the game laws, and with him have visited Southbridge, Sturbridge, Charlton, Oakham, Paxton and Orange. I have made two arrests. Both of the parties were convicted and fined \$20 each. There is very little hunting, if any, done about here on the Sabbath.

Respectfully,

JAMES A. SPENCER,
Deputy.

NORTH BROOKFIELD, NOV. 1, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — There is, even at this early date, a great improvement in observing the fish and game laws in this section. The Sunday law has been well observed. The sportsman and rod and gun clubs all seem to take hold in the right spirit in having the laws observed. Partridge have done well in this section. Quail are more plentiful than in the twenty years last past.

I have had no occasion to make any arrests. Think I can safely say there has not been one partridge killed in this section, where there were ten last year and previous years. I think the Old Bay State has started in the right direction, especially in regard to some of the game laws.

Respectfully,

T. J. MANLY,
Deputy.

CHARLTON, NOV. 10, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — There is quite a supply of quail here. Partridge are rather scarce. There has not been much out-of-town hunting here, as the farmers have their land mostly posted. I have made no arrests. There has been no Sunday hunting, unless during the past three weeks, when I have been sick.

Respectfully,

CHAS. H. BALDWIN,
Deputy.

WARE, Oct. 23, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :— I have caused one arrest to be made for illegal fishing, and the man was convicted and paid a fine. He was fishing in a private pond when I caught him, and the lesson has had a good effect on others. I think there is very little illegal hunting, and in my travels about the woods and along the streams I find the people generally inclined to observe the law.

Trout are scarce in the streams about here, and they have nearly all been lost in Snow's Pond, so called. A few weeks ago the dam gave away during the night, and drained the pond; all the fish were swept away, and all I could do was to save a few the next morning.

Partridge and woodcock are quite plentiful hereabouts, but I find quail very scarce, in fact, none to speak of.

Respectfully,

DENNIS SHEA,
Deputy.

WEST GARDNER, Nov. 10, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :— The total number of arrests made was four. They were all convicted and fined for Sunday fishing. In regard to fish and game in my vicinity, I am sorry to say that fishing is poor, but game is fairly plentiful.

Respectfully,

F. S. CASAVANT,
Deputy.

ATHOL CENTRE, Dec. 10, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :— The short time for hunting birds has done much good. The pot hunters are in a hole. The brooks were very dry, and the trout fry must have nearly all died. I think if the State would keep them until the fall rains come the results would be much better. Deer are seen quite often. A few pheasants have been seen by hunters; I saw one cross the road in front of my team.

Respectfully,

W. U. FROST,
Deputy.

SOUTHBRIDGE, Sept. 10, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN :— I have been on the watch all summer for law breakers; have been out almost every Sunday, but have not seen a man fishing on Sunday. I have been at the Leader Pond and Alum

Pond, and stayed over night, in order to be there early Sunday morning, but it has been very quiet during the past summer.

Respectfully,

AUGUSTUS LOOMIS,
Deputy.

WEBSTER, Dec. 3, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I am satisfied there has been very little violation of fish and game laws, except ferreting, and this in Connecticut, as we border on the State line. The game birds are not so plentiful as formerly, and the song and insect-eating birds are gradually being exterminated. There are but few robins and bluebirds. Fish in the lakes and streams remain about the same.

Respectfully,

RUFUS C. HALL,
Deputy.

SOUTHBRIDGE, Nov. 9, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I have made no arrests. I have had a copy of the law relating to small bass printed on cloth and posted on trees and buildings around Alum and Holland ponds. A very few large bass have been taken this year. The trout fishing was not so good as last year. Quite a number of quail this year, but only a few partridges and woodcock. Deer have been seen here several times this fall. A few months ago, a lady living on the Charlton road reported seeing a flock of Mongolian pheasants in front of her house ; there were ten little ones, and the male bird.

The fish and game laws sent me were posted in places where they would do the most good. There is very little Sunday fishing and hunting going on here.

Respectfully,

J. W. ROBINSON,
Deputy.

HOLLAND, Nov. 13, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — I have posted in conspicuous places the cloth posters you sent me. Have also posted on cloth the Acts of 1893, chapter 80 ; and Acts of 1896, chapter 229.

Some few in this locality complained at first of the recent law relative to the selling of partridge and woodcock, but have heard nothing of late, or since the season opened.

Respectfully,

A. F. BLODGETT,
Deputy.

(3) Western Section of the State.

WESTFIELD, NOV. 17, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I have made no arrests, although I have devoted much time to looking after the game interests. There is an improvement in the observance of the laws.

Trout fishing has not been good, because the streams have been very low and some of them dried up. Some good catches of bass have been taken from the river; they are increasing. Pickerel are scarce and decreasing.

Game is better than a year ago. Gray squirrels and rabbits have been plentiful. Partridges and woodcock are about the same as last year; quail are very scarce. Deer have visited us several times. The pheasants liberated last spring have been seen several times this fall. One was found dead in a yard two miles from where it was liberated. I don't know how it came there; could find no marks on it. Have not heard of any young being found yet.

Respectfully,

W. J. MORTON,

Deputy.

SPRINGFIELD, NOV. 30, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— Since my report of Dec. 13, 1899, I have made eight arrests for violation of the fish and game laws. Of these, seven were convicted and one discharged.

Ray Colyear of Springfield was caught breaking robins' eggs; was given a talking to and let go. He is a boy eleven years old.

Respectfully,

W. S. WHEELER,

Deputy.

SOUTH HADLEY FALLS, DEC. 8, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I think that the fish and game laws are much better observed in this vicinity than for several years past. Commencing with April, I spent several Sundays scouring the country, and saw only one man fishing on Sunday, and he ran away before I got near enough to identify him. Another Sunday I saw two young men with bicycles and fish poles. I told them they had better go home, and go fishing some other day. They turned about and went to Holyoke. I think our greatest violation of law is in hunting rabbits with ferrets, and also one of the hardest to get at, so as to be able to convict. I

have found and removed three set nets from streams, and one fish pole and line, which were left by the man I spoke of who ran away.

Respectfully,

M. L. BARNES,

Deputy.

BUCKLAND, Nov. 9, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have made no arrests and know of no violations of the fish and game laws here, except a case of Sunday shooting, which I was unable to prove. I feel sure the sale of game in this section has entirely ceased.

The condition of the game fields here is not very encouraging, as ruffed grouse and woodcock are very scarce; other game is fairly plentiful. Few game birds have been killed in this section, and they will increase.

Respectfully,

E. C. HALL,

Deputy.

SHELBURNE FALLS, Dec. 1, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—Please excuse this delay in submitting my annual report, as, at the time I should have made the report, I had a somewhat important case pending which I wished to include.

During the past season there has been a fair observance of the laws relating to the preservation of game. Nevertheless, there are some people, not sportsmen, who persist in violating the law; the law against Sunday hunting and that against the use of ferrets being the most frequently violated. In my opinion, the present arrangement for enforcing the law is not the best that could be devised. The investigation of reported violations takes time that few deputies can afford to spend without compensation, which is now what they must do unless arrests are made and convictions secured. This sometimes gives the courts and the public the impression that the officer is actuated rather by the desire to get one-half of the fine than a wish to see the law enforced.

Copies of the game laws have been conspicuously posted throughout this section. The local papers have also published abstracts of the law.

The law preventing the sale of partridge has been strictly observed, with the result that it has prevented the indiscriminate slaughter of these birds for market, that has taken place in former years. It has also had a salutary effect in preventing the practice of snaring. Gray

squirrels have been unusually plentiful this year. Woodcock and quail have been very scarce.

There is a general feeling among sportsmen that there should be a law passed restricting the catching of trout under a reasonable length. There are a few men who go out two or three times a week during the season and catch a basket full of trout, from two hundred to four hundred in number, with which the brooks were stocked the previous year.

There has been a marked increase in the number of deer in this section, and it would seem important that the law in regard to killing them should be rigidly enforced. My attention was recently called to a case of deer killing which occurred in Conway, Mass. I immediately notified Game Warden Nichols of North Adams. We investigated the case, and secured sufficient evidence to warrant the arrest of Webster Hart. I entered a complaint against him and arrested him. He was arraigned before the district court of Franklin on November 24, entered a plea of not guilty, and the case was continued for trial on Friday, November 30. The trial was had on that day. The defendant was convicted and sentenced to pay a fine of \$100. He took an appeal from this decision, and the case will be heard again in the superior court next March.

Respectfully,

PERRY F. CRAFTS,
Deputy.

COLRAIN, Nov. 12, 1900.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I found five or six fellows fishing on Sunday, but made no arrest, as they agreed to stop it if I would not, so I let them off, as it was the first time, and I have not seen or heard of them doing it since. Sunday hunting is stopped in this part of the town, but I have had reports from other parts that there was hunting, but have caught no one yet. It is done by those who are ignorant of the law, and I think that if I can stop it without making any arrest it is better to do so, as it does not make enemies and all seem to want to protect the game.

The water here the past season has been very low, but the streams that we stocked this summer seem to be full of small trout.

Respectfully,

C. N. CARPENTER,
Deputy.

[E.]

REPORT UPON CONVICTIONS, FINES, ETC., FOR VIOLATIONS OF FISH AND GAME LAWS,
OBTAINED BY PAID DEPUTIES.

STATE v. —	TOWN OR CITY.	Offence.	Court Decision.	Fine.
Frank H. Ricker,	Cottage City,	Sunday hunting,	Convicted,	\$5 00
Prince M. Stewart,	Wood's Hole,	Short lobster,	Convicted,	5 00
E. C. Brownell,	New Bedford,	Short lobsters,	Convicted,	15 00
Edward Atwell,	New Bedford,	Short lobsters,	Discharged,	—
Sylvester Baker,	Salem,	Short lobsters,	Convicted,	40 00
Joseph Tibbetts,	Nahant,	Mutilated lobsters,	Convicted,	45 00
William Lucky,*	Pawtucket, R. I.,	Sunday hunting,	Convicted,	5 00
Edward Kane,	Providence, R. I.,	Sunday hunting,	Convicted,	10 00
James Mather,	Pawtucket, R. I.,	Sunday hunting,	Convicted,	5 00
Isaac Sampson,	Lakeville,	Illegal fishing,	Convicted,	20 00
Eugene Sampson,†	Lakeville,	Illegal fishing,	Convicted,	—
Oliver H. Perry,	Barnstable,	Sunday hunting,	Convicted,	10 00
Albert F. Bearse,	Barnstable,	Sunday hunting,	Convicted,	10 00
Sherman E. Stevens,	Barnstable,	Sunday hunting,	Convicted,	5-00
Charles Crowell,†	Dennis,	Illegal fishing,	Convicted,	—
Hiram E. Baker,†	Dennis,	Illegal fishing,	Convicted,	—
— Howes,	Yarmouth,	Gulls out of season,	Convicted,	20 00
Edward R. Sisson,†	New Bedford,	Illegal fishing,	Convicted,	25 00
Jesse Silvia,	New Bedford,	Illegal fishing,	Convicted,	25 00
George J. Greenleaf,	Boston,	Offering gray squirrel for sale in close season,	Convicted,	10 00
William Box,	Salem,	Trapping song birds,	Convicted,	10 00
John Box,†	Salem,	Trapping song birds,	Convicted,	—
Charles McIntire,	Lynn,	Robbing nests,	Discharged,	—

Ernesta Bowman, . . .	Rockport, . . .	Short lobsters, . . .	Convicted, . . .	50 00
Harrison P. Wires, . . .	Rockport, . . .	Short lobsters, . . .	Discharged, . . .	—
Harry P. Johnson, . . .	Beverly, . . .	Mutilated lobsters, . . .	Discharged, . . .	—
Sylvester Baker,† . . .	Salem, . . .	Short lobsters, . . .	Convicted, . . .	40 00
Joseph B. Tibbetts, . . .	Nahant, . . .	Mutilated lobsters, . . .	Convicted, . . .	45 00
Frank E. Gibson, . . .	Uxbridge, . . .	Shooting black ducks in close season, . . .	Convicted, . . .	20 00
Harry Tracy, . . .	Everett, . . .	Small black bass, . . .	Convicted, . . .	10 00
Henry Kingsbury, . . .	Everett, . . .	Small black bass, . . .	Convicted, . . .	10 00
Joseph Cearls, . . .	Boston, . . .	Shooting song birds, . . .	Discharged, . . .	—
Cresenzo Colombo, . . .	Lynn, . . .	Shooting song birds, . . .	Discharged, . . .	—
Donato Gayliodi, . . .	Boston, . . .	Shooting song birds, . . .	Convicted, . . .	10 00
Dominick Repetto, . . .	Reading, . . .	Shooting song birds, . . .	Discharged, . . .	—
Richard Clapp, . . .	Scutuate, . . .	Sunday hunting, . . .	Convicted, . . .	20 00
Channing Peterson, . . .	Weymouth, . . .	Sunday shooting, . . .	Convicted, . . .	5 00
Charles O'Connor, . . .	Weymouth, . . .	Sunday shooting, . . .	Convicted, . . .	5 00
William Coleran, . . .	Cohasset, . . .	Sunday shooting, . . .	Convicted, . . .	5 00
Patrick Hannaford, . . .	Cohasset, . . .	Sunday shooting, . . .	Case pending, . . .	—
Charles H. Brown, . . .	Cohasset, . . .	Sunday shooting, . . .	Case pending, . . .	—
Andrew J. Fuller,‡ . . .	Nahant, . . .	Mutilated lobsters, . . .	Discharged, . . .	—
Salvatore Mandabrano, . . .	Boston, . . .	Seining smelts, . . .	Convicted,¶ . . .	50 00
Giuseppino Feroso, . . .	Boston, . . .	Seining smelts, . . .	Convicted,¶ . . .	50 00
Paolo Seapo, . . .	Boston, . . .	Seining smelts, . . .	Convicted,¶ . . .	50 00
Oliver Wolfe,† . . .	Canton, . . .	Illegal shooting, . . .	Convicted, . . .	—
Leonard F. Wolfe,† . . .	Canton, . . .	Illegal shooting, . . .	Convicted, . . .	—
Charles Berg, . . .	Neponset, . . .	Pursuing wild fowl, Quincy Bay, . . .	Convicted, . . .	20 00
Peter Petersen,† . . .	Boston, . . .	Pursuing wild fowl, Quincy Bay, . . .	Convicted, . . .	—

† On file.

* This man and others were arrested at Rehoboth, Mass.

† In this case, in which Sisson and Silvia were associated, the boat and net were sold for the benefit of the State.

‡ In this case 280 mutilated lobsters were found by deputies Hunt and Thayer. The manager of a hotel was supposed to stand in the same relation to mutilated lobsters in the house as a dealer does in whose establishment illegal lobsters are found. This, being a \$1,400 case, could not be tried in the lower court, but was held for the grand jury. The grand jury, however, failed to find a bill against the defendant.

¶ The boat and seine that were being used by these men were forfeited to the State, and were sold for \$25.

Report upon Convictions, Fines, etc., for Violations of Fish and Game Laws, obtained by Paid Deputies — Concluded.

STATE v. —	TOWN OR CITY.	Offence.	Court Decision.	Fine.
Andrew Olsen,*	Boston, .	Pursuing wild fowl, Quincy Bay,	Convicted, .	—
Joseph Kennedy,*	Weymouth, .	Sunday shooting, .	Convicted, .	—
Lamont Pratt, .	Stoughton, .	Sunday shooting, .	Convicted, .	\$10 00
Joseph Bugbee,	New Braintree,	Shooting game out of season,	Discharged, .	—
Charles Tatman,	Brookfield, .	Sunday hunting, .	Convicted, .	20 00
Warren K. Jones,	Brookfield, .	Sunday hunting, .	Convicted, .	20 00
Charles Kruzina,*	Bondsville, .	Illegal fishing, .	Convicted, .	—
Arthur W. Lyman,	Monson, .	Sunday hunting, .	Convicted, .	10 00
Louis Ambrose,	Palmer, .	Sunday hunting, .	Convicted, .	10 00
John Bowler, .	Palmer, .	Sunday hunting, .	Discharged, .	—
John Fitzgerald,	Palmer, .	Sunday hunting, .	Discharged, .	—
Thomas Lyons,	Deerfield, .	Sunday hunting, .	Convicted, .	10 00
Gordon Beebe,	Hancock, .	Selling trout less than six inches long,	Convicted, .	10 00
David McCleary,	Williamstown,	Selling small trout, .	Convicted, .	30 00
Andrew Lapoult,	Greenfield, .	Sunday hunting, .	Convicted, .	10 00
Friend Boorm,	Florida, .	Sunday hunting, .	Convicted, .	2 00
Wm. Bashaw, Jr.,	Florida, .	Sunday shooting, .	Convicted, .	3 00
Edward Cone, .	Cheshire, .	Sunday shooting, .	Convicted, .	3 00
James Kelly, .	North Adams,	Sunday fishing, .	Convicted, .	1 00
Ernst Stedel, .	Williamstown,	Using ferret and Sunday hunting,	Convicted, .	20 00
Augustus Boyank,	Williamstown,	Sunday hunting, .	Convicted, .	5 00
William C. Dowd,	Williamstown,	Sunday hunting, .	Convicted, .	5 00
J. Brown,	Lee, .	Selling trout of illegal size,	Convicted, .	10 00
J. K. Brown,	Boston, .	Sunday hunting, .	Convicted, .	10 00
W. H. Gurtin, .	Salem, .	Sunday hunting, .	Convicted, .	10 00
E. A. Nothy, .	Boston, .	Sunday hunting, .	Convicted, .	10 00
L. R. Howe,	Salem, .	Sunday hunting, .	Convicted, .	10 00
	Providence, R. I., .	Sunday hunting, .	Convicted, .	10 00

E. A. Howe, . . .	Providence, R. I., . . .	Sunday hunting, . . .	Convicted, . . .	10 00
Moses Hilton, . . .	New Salem, . . .	Sunday hunting, . . .	Discharged, . . .	-
Perley Whitman, . . .	New Salem, . . .	Sunday hunting, . . .	Discharged, . . .	-
G. C. Richardson, . . .	Boston, . . .	Sunday hunting, . . .	Convicted, . . .	10 00
William Estes, . . .	Windsor, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
Harry Estes, . . .	Windsor, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
John Fisce, . . .	Pittsfield, . . .	Sunday hunting, . . .	Discharged, . . .	-
Dominic Satori, . . .	Pittsfield, . . .	Sunday hunting, . . .	Discharged, . . .	-
Stephen Carpenter, . . .	Pittsfield, . . .	Sunday hunting, . . .	Convicted, . . .	3 50
Stephen Carpenter, Jr., . . .	Pittsfield, . . .	Sunday hunting, . . .	Convicted, . . .	3 50
Stephen Dowlin, . . .	Pittsfield, . . .	Sunday hunting, . . .	Convicted, . . .	3 50
Fred. Berry, . . .	Haverhill (?), . . .	Hunting with ferret, . . .	Convicted, . . .	20 00
E. F. Lovejoy,† . . .	Rhode Island, . . .	Sunday hunting, . . .	Convicted, . . .	25 00
J. F. Fisk, Jr.,† . . .	Rhode Island, . . .	Sunday hunting, . . .	Convicted, . . .	25 00
C. M. Taft,† . . .	Rhode Island, . . .	Sunday hunting, . . .	Convicted, . . .	25 00
James Walls, . . .	Granby, . . .	Illegal hunting, . . .	Convicted, . . .	30 00
Henry D. Greenwood, . . .	Sturbridge, . . .	Shooting deer, . . .	Pleaded nolo contendere, . . .	100 00
Walter Hager, . . .	Southbridge, . . .	Shooting deer, . . .	Discharged, . . .	-
Joseph Boucher, . . .	Southbridge, . . .	Shooting deer, . . .	Discharged, . . .	-

* On file.

† These parties, citizens of Rhode Island, were arrested for hunting in Douglas. They were convicted and fined in the lower court, and appealed.

[F.]

REPORT UPON CONVICTIONS, FINES, ETC., FOR VIOLATIONS OF FISH AND GAME LAWS,
OBTAINED BY UNPAID DEPUTIES.

STATE v. —	TOWN OR CITY.	Offence.	Court Decision.	Fine.
Geo. W. Burgess,	Nantucket,	Sunday fishing,	Discharged,	—
Orison V. Hull,	Nantucket,	Sunday fishing,	Discharged,	—
David Pease,	Edgartown,	Illegal fishing,	Discharged,	—
Allen Mayhew,	Edgartown,	Illegal fishing,	Discharged,	—
Arthur Woodward,	Taunton,	Sunday fishing,	Convicted,	\$3 00
John Coyle,	Weymouth,	Illegal fishing,	Convicted,	10 00
Arthur Blanchard,	Weymouth,	Illegal fishing,	Convicted,	10 00
Arthur Percival,	Taunton,	Sunday fishing,	Convicted,	3 00
Ellen A. Powers,	New Bedford,	Having pheasant feathers in possession,	Case continued,	10 00
Hugh T. Boyd,	Boston,	Scallops,	Convicted,	20 00
John W. Gately,	Waltham,	Short lobsters,	Convicted,	10 00
David W. Allen,	Canton,	Sunday fishing,	Convicted,	5 00
Henry B. Brooks,	Canton,	Sunday fishing,	Convicted,	5 00
George F. Stringe,	Canton,	Sunday fishing,	Convicted,	5 00
Thomas F. Edgerton,	Canton,	Sunday fishing,	Convicted,	5 00
Calvin Crooker,	Canton,	Sunday fishing,	Convicted,	5 00
Henry Laws,	Canton,	Sunday fishing,	Convicted,	5 00
Eugene W. Russell,	Canton,	Sunday fishing,	Convicted,	5 00
Dell Quest,	Canton,	Sunday fishing,	Convicted,	5 00
Chas. F. McIntyre,	Canton,	Sunday fishing,	Convicted,	5 00
Leo Lyons,	Canton,	Sunday fishing,	Convicted,	5 00
Miller Gatost,	Quincy,	Sunday fishing,	Convicted,	3 00
Henry Frineck,	Quincy,	Sunday fishing,	Convicted,	3 00

Charles Wilson,	Quincy,	Sunday fishing,	Convicted,	3 00
Clement Landers,	Boston,	Short lobsters,	Convicted,	10 00
Albert Metzger,	Quincy,	Sunday fishing,	Convicted,	3 00
Adolph Gebhardt,	Quincy,	Sunday fishing,	Convicted,	3 00
Edward Ferrin,	Quincy,	Sunday fishing,	Convicted,	3 00
William Murphy,	Quincy,	Sunday fishing,	Convicted,	3 00
Leo Babo,	Quincy,	Sunday fishing,	Convicted,	3 00
Charles Benson,	Quincy,	Sunday fishing,	Convicted,	3 00
Frederic Reimer,	Quincy,	Sunday fishing,	Convicted,	3 00
Niles Lindholm,	Quincy,	Sunday fishing,	Convicted,	3 00
Edward W. Baker,	Quincy,	Sunday fishing,	Convicted,	5 00
Henry Bowers,	Quincy,	Sunday fishing,	Convicted,	3 00
Charles Justice,	Quincy,	Sunday fishing,	Convicted,	3 00
Charles Miller,	Quincy,	Sunday fishing,	Convicted,	3 00
Frank Lopilato,	Braintree,	Sunday fishing,	Convicted,	10 00
Desta Ardmo,	Braintree,	Shooting song birds,	Convicted,	10 00
Angelo Bianchi,	Braintree,	Shooting song birds,	Convicted,	5 00
Baltstoc Vinni,	Braintree,	Sunday hunting,	Convicted,	10 00
Jerry Maloney,*	Braintree,	Shooting song birds,	Convicted,	10 00
Henry L. Gleason,	Arlington,	Killing pheasant,	Convicted,	20 00
William Knightly,	East Brookfield,	Sunday hunting,	Convicted,	20 00
William Scholtz,	Lawrence,	Sunday hunting,	Convicted,	10 00
William Mullen,	Lawrence,	Sunday hunting,	Convicted,	10 00
Patrick Murphy,	Lawrence,	Sunday hunting,	Convicted,	10 00
W. F. Roberts,	Lynn,	Mutilated lobsters,	Convicted,	10 00
Henry M. Ashley,	Gloucester,	Lobsters,	Convicted,	10 00
E. M. Bevins,*	Gloucester,	Short lobsters,	Convicted,	25 00
Raul Geoffrey,	Lowell,	Fishing near fishway on Merrimac River,	Convicted,	175 00
Louis Dyer,	Ware,	Illegal fishing,	Convicted,	50 00
Otto Johnson,	Gardner,	Sunday fishing,	Convicted,	5 00
Alex. Kortena,	Gardner,	Sunday fishing,	Convicted,	5 00

* Appealed.

Report upon Convictions, Fines, etc., for Violations of Fish and Game Laws, obtained by Unpaid Deputies — Concluded.

STATE v. —	TOWN OR CITY.	Offence.	Court Decision.	Fine.
Oscar Mattien, . . .	Gardner, . . .	Sunday fishing, . . .	Convicted, . . .	\$5 00
Matti Kortema, . . .	Gardner, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
Arthur Randall, . . .	Sutton, . . .	Sunday hunting with ferret, . . .	Convicted, . . .	20 00
John Pollard, . . .	Paxton, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
Henry Bumell, . . .	Paxton, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
James F. Delaney, . . .	Holden, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
J. F. Adams, . . .	Holden, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
George Bennett, . . .	Sutton, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
Edward Bennett, . . .	Sutton, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
Herbert Orcutt, . . .	Shrewsbury, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
Gustav Sjöberg, . . .	Shrewsbury, . . .	Sunday fishing, . . .	Convicted, . . .	10 00
Vespie Vitorio, . . .	Boylston, . . .	Sunday shooting, . . .	Convicted, . . .	5 00
Buonic Pacifico, . . .	Boylston, . . .	Sunday shooting, . . .	Convicted, . . .	5 00
Carletti Augustino, . . .	Boylston, . . .	Sunday shooting, . . .	Convicted, . . .	5 00
Victor Berg, . . .	Worcester, . . .	Robbing nests, . . .	Convicted, . . .	3 00
Charles Hjeipe, . . .	Worcester, . . .	Robbing nests, . . .	Convicted, . . .	3 00
James Butterworth, . . .	Worcester, . . .	Killing song birds, . . .	Convicted, . . .	3 00
Charles Hogland, . . .	Worcester, . . .	Robbing nests, . . .	Convicted,* . . .	—
George W. Plymton,† . . .	Worcester, . . .	Illegal fishing, . . .	Convicted, . . .	40 00
Frank H. Wilson,† . . .	Worcester, . . .	Illegal fishing, . . .	Convicted, . . .	40 00
Webster Hart,† . . .	Worcester, . . .	Killing deer, . . .	Convicted, . . .	100 00
Hallie G. Sibley, . . .	Conway, . . .	Sunday hunting, . . .	Convicted, . . .	30 00
Wm. R. Harrington, . . .	Florida, . . .	Sunday fishing, . . .	Convicted, . . .	3 00
Earl Turner, . . .	Florida, . . .	Sunday fishing, . . .	Discharged, . . .	—
George Turner, . . .	Florida, . . .	Sunday fishing, . . .	Discharged, . . .	—
Earl Currier, . . .	Florida, . . .	Sunday fishing, . . .	Discharged, . . .	—
Chauncy Burdick, . . .	Florida, . . .	Sunday hunting and illegal fishing, . . .	Convicted, . . .	5 00

Henry Burdick,	.	Florida, .	.	Illegal fishing,	.	.	.	Convicted,	.	5 00
Henry A. Smith,	.	West Springfield,	.	Sunday fishing,	.	.	.	Convicted,	.	5 00
Daniel F. Crowley,	.	West Springfield,	.	Sunday fishing,	.	.	.	Convicted,	.	5 00
John O'Hare,	.	West Springfield,	.	Sunday fishing,	.	.	.	Convicted,	.	5 00
Joseph Benney,	.	Springfield, .	.	Shooting song birds,	.	.	.	Convicted,	.	10 00
Francisco Demoni,	.	Springfield, .	.	Shooting song birds,	.	.	.	Convicted,	.	10 00
William Cotlini,	.	West Springfield,	.	Shooting song birds,	.	.	.	Convicted,	.	10 00
Louis Hartley,	.	West Springfield,	.	Illegal fishing,	.	.	.	Convicted,	.	10 00
Fred. Rice,	.	Plainfield,	.	Sunday fishing,	.	.	.	Convicted,	.	10 00

† Appealed.

* On file.

[G.]

LEGISLATION.

Acts of 1900.

[CHAPTER 64.]

AN ACT TO PROVIDE FOR THE PROTECTION OF MONGOLIAN, ENGLISH
AND GOLDEN PHEASANTS.

Be it enacted, etc., as follows :

Whoever takes or kills, or has in his possession, except for purposes of propagation, any Mongolian, English or golden pheasant, at any time within five years from the passage of this act, shall be punished by a fine of twenty dollars for every bird so taken, killed or had in possession. [Approved February 13, 1900.]

[CHAPTER 379.]AN ACT TO PROVIDE FOR THE BETTER PROTECTION AND TO REGULATE
THE SALE OF GAME BIRDS.

Be it enacted, etc., as follows :

SECTION 1. It shall be unlawful to take or kill or have in possession, or buy, sell or offer for sale, a woodcock, or a ruffed grouse, commonly called a partridge, between the first day of December and the first day of October following, whenever or wherever such bird may have been taken or killed.

SECTION 2. For a period of three years after the passage of this act it shall also be unlawful to buy, sell, offer for sale, or have in possession for sale, any woodcock, or ruffed grouse, commonly called partridge, whenever or wherever the said birds may have been taken or killed.

SECTION 3. It shall be unlawful to take or kill or have in possession, or buy, sell or offer for sale, a quail, between the first day of December and the first day of October following, whenever or wherever such bird may have been taken or killed : *provided, however,* that any person, firm or corporation dealing in game or engaged in the cold storage business may buy, sell or have in possession, and any person may buy from such person, firm or corporation, and have in possession if so bought, quail from the first day of December to

the first day of May, if such quail were not taken or killed in this Commonwealth contrary to the provisions of this act; and any person, firm or corporation dealing in game or engaged in the cold storage business may have quail in possession on cold storage at any season, if such quail were not taken or killed in this Commonwealth contrary to the provisions of this act.

SECTION 4. It shall be unlawful to take or kill a pinnated grouse at any time, or a wood or summer duck, black duck or teal, between the first day of March and the first day of September, or any other of the so-called duck species, between the twentieth day of May and the first day of September, or to buy, sell or have in possession any of the birds named in this section during the time within which the taking or killing thereof is prohibited, whenever or wherever such birds may have been taken or killed: *provided, however*, that any person, firm or corporation dealing in game or engaged in the cold storage business may buy, sell or have in possession, and any person may buy from such person, firm or corporation, and have in possession if so bought, pinnated grouse, wild pigeons and any of the so-called shore, marsh or beach birds, or any of the so-called duck species, at any season, if such birds were not taken or killed in this Commonwealth contrary to the provisions of this act.

SECTION 5. Whoever takes or kills, or buys or sells or offers for sale, or has in possession, or has in possession for sale, any bird contrary to the provisions of this act, shall be punished by a fine of twenty dollars for every bird so taken or killed, or bought or sold or offered for sale, or had in possession, or had in possession for sale.

SECTION 6. Section one of chapter two hundred and five of the acts of the year eighteen hundred and ninety-four, and chapter one hundred and ninety-five of the acts of the year eighteen hundred and ninety-eight, are hereby repealed; but such repeal shall not affect any forfeiture incurred, suit or proceeding pending or action accrued under said section or chapter. [*Approved June 13, 1900.*]

[CHAPTER 209.]

AN ACT TO REGULATE THE SHOOTING OF BLACK DUCK, GEESE, BRANT
AND OTHER AQUATIC BIRDS IN PLYMOUTH HARBOR OR BAY.

Be it enacted, etc., as follows:

SECTION 1. Whoever within the limits of Plymouth harbor or bay, so-called, including the waters adjacent to the towns of Plymouth, Kingston and Duxbury, shoots at or kills or pursues a black duck, goose, brant or other aquatic bird, by the use of any sneak boat, raft, floating box or device of like description, not including what is

known as an ordinary dory or row boat, or by the use of any pivot gun or swivel gun, or any other firearm not usually held at and discharged from the shoulder, shall be punished by a fine of not less than ten nor more than fifty dollars.

SECTION 2. Chapter two hundred and sixty-nine of the acts of the year eighteen hundred and eighty-eight is hereby repealed. [*Approved April 5, 1900.*]

[CHAPTER 128.]

AN ACT RELATIVE TO THE DESTRUCTION OF HAWKS IN THE COUNTY OF DUKES COUNTY.

Be it enacted, etc., as follows :

SECTION 1. Section two of chapter two hundred and thirty-seven of the acts of the year eighteen hundred and ninety is hereby amended by inserting before the word "foxes", in the third line, the word:—hawks,—so as to read as follows:—*Section 2.* The county commissioners of the county of Dukes County are hereby empowered to offer a reward for the destruction of hawks, foxes and raccoons, and to authorize the payment of the same from the county treasury, upon proper proof of such destruction.

SECTION 2. This act shall take effect upon its passage. [*Approved March 7, 1900.*]

[CHAPTER 101.]

AN ACT TO AUTHORIZE THE LEASING OF TISBURY GREAT POND BY THE COMMISSIONERS ON INLAND FISHERIES AND GAME.

Be it enacted, etc., as follows :

SECTION 1. The commissioners on inland fisheries and game, or any two of them, may in the name of the Commonwealth lease, for a term not exceeding eleven years, the pond known as Tisbury Great Pond, in the county of Dukes County, with the arms, coves and bays connected therewith, for the purpose of cultivating useful fishes, for such periods of time and on such terms and conditions as may seem to them most for the public good: *provided*, that nothing herein shall affect the right of any citizen of the Commonwealth to take fish in said pond or in the waters connected therewith, by hook and line, according to the laws now or hereafter in force relating to the taking of fish by hook and line.

SECTION 2. Before making such lease the commissioners shall appoint a time and place for a hearing upon the application therefor, and shall give notice of the hearing to every town within the limits of which any part of said pond lies.

SECTION 3. The rental of said pond, arms, bays and coves shall be one hundred and twenty-five dollars a year, payable by the lessees thereof on the first day of March annually to the treasurers of the towns of West Tisbury and Chilmark, one half part to each.

SECTION 4. Any town within the limits of which any part of said pond lies may, for the purpose of cultivating useful fishes, take a lease of said pond, and appropriate money therefor, at the rental aforesaid and upon such conditions as may be agreed upon by such town and the aforesaid commissioners, provided that the said pond is not already leased.

SECTION 5. The commissioners may fix the limits of the said pond and the arms, coves and bays connected therewith; which limits, being recorded in the registry of deeds for said county, shall be taken to be the legal limits thereof for all the purposes of this act.

SECTION 6. The commissioners shall have the custody of all such leases, and may cause any agreements, rights, reservations, forfeitures and conditions therein contained to be enforced, and for that purpose may institute proceedings in the name of the Commonwealth, and may take possession of any premises for breach of condition of such lease, and after revesting the Commonwealth therewith may again lease the same.

SECTION 7. This act shall take effect upon its passage. [*Approved February 21, 1900.*]

[CHAPTER 159.]

AN ACT TO REGULATE THE TAKING OF HERRING AND MACKEREL IN
MILL RIVER AND PLUM ISLAND RIVER AND THEIR TRIBUTARIES.

Be it enacted, etc., as follows:

SECTION 1. No person engaged in taking herring or mackerel, otherwise than with a dip net, in Mill river and its tributaries in the towns of Essex and Ipswich and in the city of Gloucester, or in Plum Island river and its tributaries in the towns of Ipswich, Rowley and Newbury, shall use a net or seine with a mesh the size of which is less than one and three quarters inches.

SECTION 2. Whoever violates any of the provisions of section one of this act shall be subject to a fine of twenty-five dollars for each offence, and in addition thereto shall forfeit the fish taken in such violation and the apparatus used in taking them.

SECTION 3. Sections one and three of chapter one hundred and five of the acts of the year eighteen hundred and eighty-seven are hereby repealed. [*Approved March 16, 1900.*]

[CHAPTER 230.]

AN ACT RELATIVE TO THE TAKING OF LOBSTERS.

Be it enacted, etc., as follows:

Section one of chapter one hundred and eighty-three of the acts of the year eighteen hundred and ninety-three is hereby amended by striking out the words "being at the time", in the first line, and inserting in place thereof the words:—having been,—and by inserting after the word "Commonwealth", in the second line, the words:—for one year,—so as to read as follows:—*Section 1.* Whoever, not having been an inhabitant of this Commonwealth for one year, sets or keeps or causes to be set or kept in any of the waters of this Commonwealth any pot, net or trap for the catching of lobsters, shall forfeit twenty dollars for each offence, one half to the use of the complainant and one half to the use of the Commonwealth. [*Approved April 13, 1900.*]

[CHAPTER 428.]

AN ACT TO PROVIDE FOR THE BETTER PROTECTION OF LOBSTERS.

Be it enacted, etc., as follows:

SECTION 1. Section one of chapter two hundred and twelve of the acts of the year eighteen hundred and eighty-four, as amended by section one of chapter three hundred and fourteen of the acts of the year eighteen hundred and eighty-seven, is hereby amended by striking out the whole of said section and inserting in place thereof the following:—*Section 1.* Whoever sells or offers for sale, or has in his possession an uncooked lobster less than ten and one half inches in length, or a cooked lobster less than ten and one quarter inches in length, measuring from the extremity of the bone projecting from the head to the end of the bone of the middle flipper of the tail of the lobster, extended on its back its natural length, shall forfeit a sum not exceeding five dollars for every such lobster; and in all prosecutions under this section the possession of any lobster, cooked or uncooked, not of the prescribed length, shall be prima facie evidence to convict.

SECTION 2. All forfeitures under this act shall be paid one half to the city or town in which the offence is committed and one half into the treasury of the Commonwealth.

SECTION 3. All acts and parts of acts inconsistent herewith are hereby repealed. [*Approved July 5, 1900.*]

[CHAPTER 234.]

AN ACT RELATIVE TO FISHING IN PODONK POND.

Be it enacted, etc., as follows :

SECTION 1. All taking of fish in the pond known as Podonk pond and as lake Quacumquasit, lying wholly or partly in the towns of Brookfield and Sturbridge, shall be unlawful from and including the first day of October, to and including the twentieth day of June, for a period of five years beginning with the year nineteen hundred ; and the commissioners on inland fisheries and game are hereby authorized and directed to forbid and prevent such taking.

SECTION 2. During the open season provided for in section one, namely, between the twentieth day of June and the first day of October in each year during the said period of five years, it shall be unlawful for any person to take from said pond in any one day more than twelve pounds of white perch or five pounds of trout, salmon trout and landlocked salmon ; and the said commissioners are hereby authorized and directed to forbid and prevent such taking.

SECTION 3. Whoever violates any provision of this act shall be punished by a fine of twenty dollars for each offence. [*Approved April 13, 1900.*]

[CHAPTER 284.]

AN ACT TO REGULATE FISHING IN BROOKS STOCKED BY THE COMMISSIONERS ON INLAND FISHERIES AND GAME.

Be it enacted, etc., as follows :

SECTION 1. The commissioners on inland fisheries and game, upon petition of thirty or more inhabitants of a city or town, including the owners of the land within which a brook or part thereof is situated, or upon petition of the mayor and aldermen of a city or the selectmen of a town, including such owner or owners, may cause such brook to be stocked with such food fish as they deem best suited to the waters of the brook.

SECTION 2. Said commissioners shall thereupon prescribe, for a period not exceeding three years, such reasonable regulations as to fishing in such brook or brooks, with such penalties, not exceeding twenty dollars for any one violation of such regulations, as they may deem for the best interests of the public ; and shall cause such regulations to be enforced : *provided*, that said owners shall agree that such brook or part thereof shall be open to the public after the expiration of the three years designated in this section.

SECTION 3. There shall be allowed and paid annually from the

treasury of the Commonwealth a sum not exceeding five hundred dollars to carry out the provisions of this act.

SECTION 4. This act shall take effect upon its passage. [*Approved May 2, 1900.*]

[CHAPTER 302.]

AN ACT RELATIVE TO THE TAKING OF SCALLOPS IN THE WATERS OF
THE TOWN OF MATTAPOISETT.

Be it enacted, etc., as follows:

SECTION 1. The selectmen of the town of Mattapoisett may grant permits in writing to take scallops from waters within the limits of the town, in such quantities, at such time or times within one year, by such methods, and under such regulations, as may be expressed in their permit, and they may charge and receive therefor, in behalf of and for the use of the town, such sums as they may deem proper. But every inhabitant of the state may without such permit take scallops from the waters of the town for the use of his family from the first day of October to the first day of April, in quantity not exceeding in any week three bushels, including the shells.

SECTION 2. No person shall take any scallops from the waters of said town without a written permit from the selectmen thereof, except as provided in the preceding section.

SECTION 3. Whoever violates any provision of this act shall be punished by a fine of not less than twenty nor more than one hundred dollars, or by imprisonment in the house of correction for not less than thirty days nor more than six months, or by both such fine and imprisonment. One half of the fine shall be paid to the complainant and the other half to the county within which the offence was committed.

SECTION 4. Nothing in this act shall be construed to affect any act relating to oyster fishery, or to impair the private rights of any person, or in any way to limit or affect the provisions of law for the protection of fisheries other than scallop fisheries, or to permit the taking of scallops upon any oyster grounds or beds other than public grounds or beds.

SECTION 5. Nothing in this act shall be construed to require an inhabitant of Marion or of Rochester to obtain a permit from the selectmen of the town of Mattapoisett for the taking of shellfish or scale fish on the shores or flats, or in the waters within the town of Mattapoisett; and inhabitants of Marion or Rochester may take shellfish or scale fish on said shores and flats, and in said waters, by obtaining a permit from the selectmen of their respective towns, and by paying therefor to their respective towns the same price which is

paid by the inhabitants of the town of Mattapoisett to the selectmen of that town for similar permits.

SECTION 6. District courts and trial justices shall have concurrent jurisdiction with the superior court of all offences under this act. [*Approved May 8, 1900.*]

[CHAPTER 310.]

AN ACT TO PROVIDE FOR THE PROTECTION OF SHELLFISH IN THE
TOWNS OF SWANSEA AND SOMERSET.

Be it enacted, etc., as follows :

SECTION 1. No person shall take any shellfish from their beds, or wilfully obstruct the growth of any shellfish, within the towns of Swansea and Somerset, except as hereinafter provided.

SECTION 2. The selectmen of either of said towns may give permits in writing to any person to take shellfish from the beds within said towns, respectively, at such times, in such quantities and for such uses, as they shall deem expedient. Said selectmen may withhold all such permits for such time as they deem expedient. But any inhabitant of said towns may without such permit take shellfish from the beds in the town of which he is an inhabitant, for the use of his family, not exceeding in quantity one bushel, including shells, in any one day; and any fisherman may without such permit take shellfish from the said beds for bait for his own use, not exceeding in quantity one bushel, including shells, in any one day. Shovels shall not be used at any time below low water mark. Forks may be used by permit from the selectmen, but not otherwise.

SECTION 3. No little neck clams or quahaugs less than one and one half inches across the widest part shall be taken from their beds in either of said towns.

SECTION 4. Whoever violates any provision of this act shall be punished by a fine of not less than ten nor more than one hundred dollars.

SECTION 5. District courts and trial justices shall have concurrent jurisdiction with the superior court of all offences under this act.

SECTION 6. So much of sections sixty-eight and sixty-nine of chapter ninety-one of the Public Statutes as conflicts herewith shall not apply to the said towns of Swansea and Somerset. [*Approved May 9, 1900.*]

[CHAPTER 344.]

AN ACT RELATIVE TO THE CONSTRUCTION OF FISHWAYS BY THE
COMMISSIONERS ON INLAND FISHERIES AND GAME.

Be it enacted, etc., as follows:

SECTION 1. Section seven of chapter ninety-one of the Public Statutes is hereby amended by inserting before the word "When", in the first line, the words:—When in the opinion of the commissioners a passage for edible fish should be provided, or,—by striking out the word "he", in the third line, and inserting in place thereof the words:—either of the commissioners,—by striking out the words "such person's", in the fifth line, and inserting in place thereof the word:—the,—and by inserting after the word "expense", in the sixth line, the words:—of the Commonwealth, when in the opinion of the commissioners the person required by law to construct or maintain the same is not able to afford such expense;—so as to read as follows:—*Section 7.* When in the opinion of the commissioners a passage for edible fish should be provided, or when either of the commissioners finds that there is no fishway or an insufficient fishway in or around a dam where the law requires a fishway to be maintained, either of the commissioners may, in his discretion, enter with workmen and materials upon the premises of the person required to maintain a fishway there, and may at the expense of the Commonwealth, when in the opinion of the commissioners the person required by law to construct or maintain the same is not able to afford such expense, improve an existing fishway, or cause one to be constructed if none exists, and may take, if necessary, the land of any other person not obliged by law to maintain said fishway; and when a fishway has been constructed in accordance with the provisions of this section, the commissioners shall not require the owner of the dam to alter the same within five years from the completion thereof.

SECTION 2. This act shall take effect upon its passage. [*Approved May 24, 1900.*]

[H.]

LOBSTER STATISTICS, 1900.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
John M. Moura, . . . Thomas McAfee, . . . Jose Alberto, . . . Antonio Silva, . . . Antone Ferreira, . . . Joseph P. Silva, . . . J. P. Serrilha, . . . Jules Rose, . . . M. Rosa Dias, . . . Manuel Silva, . . . Antone Corrio, . . . Antone Costa, . . . Andrew Ferreira, . . . John Pinto, . . . Joseph Rogers, . . . Joaquin Perry, . . .	Boston, . . .	1,885	89,839	1,397
Henry Phillips, . . . A. L. Manter, . . . H. W. Tollman, . . . D. B. Blackman, . . . H. P. Taylor, . . .	Brant Rock, . . .	244	9,316	25
Chas. Foster, . . .	Beverly, . . .	25	590	38
Albert Nightingale, . . . F. C. Leonard, . . .	Bournedale, . . .	120	5,704	143
Chas. Rogers, . . . Robert T. Swift, . . . P. J. Glynn, . . . John W. Sampson, . . . Augustus Hadaway, . . . Geo. Atwell, . . . H. E. Sampson, . . . Chas. A. Boutin, . . .	Chiltonville, . . .	315	17,293	206
O. H. Stetson, . . . R. W. Rotch, . . . John Manly, . . . John F. Crowell, . . . J. H. & A. P. Tilton, . . .	Cuttyhunk, . . .	815	39,369	409

Lobster Statistics — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
C. C. Church, . . . } Thos. H. Jones, . . . } S. E. Jackson, . . . } Willard A. Charles, . . . } Robert Jackson, . . . } Joshua Keeney, . . . } H. J. Allen, . . . } C. C. Allen & Co., . . . } Frank Peters, . . . } L. E. Jackson, . . . }	Cuttyhunk, . . .	815	39,369	409
A. E. Smith, . . . } L. C. Athearn, . . . } Onslow Stewart, . . . } A. T. Pool, . . . } A. W. Carpenter, . . . } E. A. Pool, . . . } John H. Davis, . . . } Frank P. Flanders, . . . } L. E. Cottle, . . . }	Chilmark, . . .	201	5,268	286
W. F. Hitchings, . . . } E. Z. Ryder, . . . } Wm. R. Bloomer, . . . } A. W. Smith, . . . } R. T. Bearse, . . . } Arthur Baker, . . . } B. E. Bassett, . . . } Sylvester Eldredge, . . . } F. W. Baker, . . . } O. M. Gould, . . . } Geo. W. Bloomer, . . . }	Chatham, . . .	430	3,872	225
Joseph Silva, . . . } Andrew Peterson, . . . } Oscar Anderson, . . . } Andrew Hanson, . . . } Robert Ainsley, . . . } Chas. Anderson, . . . } M. S. Thomas, . . . } Levi Cadoza, . . . } J. J. Grassie, . . . }	Cohasset, . . .	1,105	55,697	1,172
John M. Stone, . . . } Geo. E. Hall, . . . } A. P. Howes, . . . } C. D. S. Crowell, . . . } Geo. Wheeler, . . . } R. R. Nickerson, . . . }	Dennis, . . .	81	1,019	125

Lobster Statistics — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
C. P. Mattison, . . . } Antone Anderson, . . . } J. H. Butts, . . . }	Dartmouth, . . .	83	741	43
Edmund Marsh, . . . } W. E. Peterson, . . . } O. C. Hunt, . . . } E. W. Cook, . . . } Daniel Burgess, . . . } S. P. Burgess, . . . } Clarence Smith, . . . } Isaac Symmes, . . . } Geo. F. Freeman, . . . } F. E. Wardsworth, . . . } S. G. I. Wardsworth, . . . } Wm. E. Freeman, . . . }	South Duxbury, . .	487	43,290	682
John Bunker, . . . } Manuel De Loura, . . . } H. O. Hillman, . . . }	Edgartown, . . .	119	5,438	229
Wm. A. Grew, . . . } M. C. Stewart, . . . } T. H. Loring, . . . } F. Joseph, . . . }	Falmouth, . . .	43	590	84
H. N. Wilber,	Fairhaven, . . .	18	295	23
A. & H. Parsons, . . . } E. F. Parsons, . . . } E. L. Small, . . . } James Carbery, . . . } Joseph Parsons, . . . } Melvin Parsons, . . . } E. D. Rust, . . . } Joseph Douglass, . . . } Arthur Stevens, . . . } Alpheus Creasy, . . . } E. L. Ashley, . . . } H. H. Ashley, . . . } D. N. Mehlman, . . . }	Gloucester, . . .	696	42,790	352
Alton Francis, . . . } C. H. Ryan, . . . } D. D. Dimond, . . . }	Gay Head, . . .	75	2,812	216

Lobster Statistics — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
M. H. Hewins, . . . } W. H. Tolman, . . . } Wm. M. Cushing, . . . } Lyman Sears, . . . } Julius White, . . . } Geo. W. Sampson, . . . } C. R. Peterson, . . . } Wilfred Keene, . . . } Thomas Pezzy, . . . } D. J. Graffum, . . . } Geo. Delano, . . . } B. P. Williamson, . . . } H. P. Tolman, . . . }	Green Harbor, .	708	38,004	494
Daniel McDonald, . . . } A. B. Cleverley, . . . }	Hull, . . .	85	4,769	15
Charles A. Bayley, . . . } Samuel S. Bayley, . . . } A. W. Montgomery, . . . }	Ipswich, . . .	51	887	38
Frank C. Chandler, . . . } J. C. Kelley, . . . }	Island Creek, .	57	3,201	32
W. V. Foster, . . .	Kingston, . . .	6	142	4
A. W. Riley, . . . } G. W. Woodbury, . . . }	Lanesville, . . .	52	1,607	86
J. H. Montgomery, . . . } Wm. A. Smith, . . . }	Lynn, . . .	80	3,005	23
W. E. Bowman, . . . } Webster Kinney, . . . } J. E. Nye, . . . }	Mattapoissett, .	98	1,316	149
P. C. Robinson, . . .	Marion, . . .	6	163	—
J. B. Knowlton, . . .	Magnolia, . . .	22	1,379	23
J. K. Gannett, Jr, . . . } Edgar Tilden, . . . }	Minot, . . .	52	2,152	61
R. F. Russell, . . . } Wm. T. Smith, . . . } J. E. Brown, . . . } John F. Trefry, . . . } C. H. Smethurst, . . . }	Marblehead, .	1,094	60,876	2,833

Lobster Statistics—Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
S. Q. Smith, . . . A. McClain, . . . Sans Standley, . . . C. T. Holland, . . . R. Farry, . . . J. G. Stacey, . . . S. K. Stone, . . . B. H. Sweet, . . . B. F. Stevens, . . . J. S. Stone, . . . Geo. K. Harrison, . . . Wm. S. Glass, . . . Wm. W. Russell, . . . Doliber Bros., . . . Wm. F. Gardner, . . . J. H. Hennessey, . . . Wm. H. Tutt, . . . R. F. Millet, . . . Phillips & Gilbert, . . . S. C. Mullett & Co., . . .	Marblehead, .	1,094	60,876	2,833
David C. Jones, . . . L. O. Sargent, . . . J. J. Slade, . . . Chas. Sargent, . . . J. G. Gilbert, . . . L. B. Briggs, . . . C. Briggs, . . . R. W. Wells, . . . Wm. Harlow, . . . G. A. Manter, . . . A. L. Holmes, . . . Chas. Wakefield, . . . R. B. Holmes, . . . W. J. Nightingale, . . . Robert Richardson, . . . I. H. Valler, . . . Thomas Stevens, . . . Dodge & Burnett, . . . C. H. Dixon, . . . James Gould, . . . F. B. Peterson, . . . Stephen Holmes, . . . T. R. Jordan, . . .	Manchester, .	160	8,356	190
John G. Milner, . . . Williamson & Babbitt, . . . Charles Wilson, . . . Geo. L. Hatch, . . .	Manomet, . .	940	50,421	1,205
	Nantasket, . .	138	6,641	194

Lobster Statistics — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Joseph Souza, . . . } John Sater, . . . } Geo. C. King, . . . } Geo. B. Taber, . . . }	New Bedford, .	180	7,473	402
J. H. Johnson, . . . } Geo. W. Wickens, . . . } J. B. Tibbetts, . . . } Geo. H. Lamphier, . . . } C. W. Taylor, . . . } G. W. Taylor, . . . }	Nahant, . . .	225	7,975	71
A. C. Swain, . . . } John Watkins, . . . } J. A. Backus, . . . } M. W. Dunham, . . . } W. H. Hamblin, . . . } H. E. Dunham, . . . } Geo. E. Coffin, . . . }	Nantucket, . .	248	2,954	58
C. B. Cleveland, . . . } Geo. W. Evans, . . . }	No Man's Land, .	60	2,613	246
Caleb Hayden, . . . } Daniel B. Gould, . . . } F. H. Hayden, . . . }	Orleans, . . .	85	1,856	58
J. C. Lurten, . . . } Geo. W. Freeman, . . . } Wm. H. Kenney, . . . } W. C. Snow, . . . } F. M. Bowley, . . . } John M. Savage, . . . } J. H. Lyttle, . . . }	Provincetown, .	241	9,624	1,146
J. P. Thurston, . . . } A. C. Sampson, . . . } Joseph Boutin, . . . } Warren Goddard, . . . } L. G. Doten, . . . } James Deacon, . . . } J. H. Bagnell, . . . } Alfred Holmes, . . . } W. R. Thomas, . . . } Frank Pierce, . . . }	Plymouth, .	415	26,108	425
John P. Sullivan, . . .	Quincy, . . .	40	1,031	—

Lobster Statistics — Continued.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
John Elvander, . . . }	Sandwich, . . .	110	1,400	137
Joseph Brady, . . . }				
F. E. Perry, . . . }				
Chas. H. Parker, . . . }				
Nathan W. Cahoon, . . . }	Sagamore, . . .	100	2,895	77
A. J. Chandler, . . . }				
A. H. Gibbs, . . . }				
John Clark, . . . }	Salem, . . .	322	9,117	334
J. A. Dunn, . . . }				
G. W. Berry, . . . }				
C. S. Brown, . . . }				
E. A. Greenough, . . . }				
C. H. Berry, . . . }				
A. E. Reed, . . . }	Squibnocket, . .	55	2,169	61
L. W. Mayhew, . . . }				
Fred Watts,	Swampscott, . .	80	3,127	121
C. H. Lord,	Salisbury Beach, .	7	33	—
James Pelrine, . . . }	Scituate, . . .	1,110	50,269	493
Eugene Pratt, . . . }				
E. P. Pratt, . . . }				
Chas. Decost, . . . }				
Thos. S. Turner, . . . }				
Everett Litchfield, . . . }				
Geo. F. Edson, . . . }				
R. I. G. Tillgreen, . . . }				
Seth Vinal, . . . }				
Thos. Dwyer, . . . }				
J. F. Cushman, . . . }				
John Patterson, . . . }				
Thos. Flynn, . . . }				
John Ward, . . . }				
Robert O. Hearn, . . . }				
D. H. Ward, . . . }				
James Dwyer, . . . }				
Harry Driscoll, . . . }				
C. F. Stetson, . . . }				
John Barry, . . . }				
Dennis Quinn, . . . }				
John Conroy, . . . }				
Silas Ryder, . . . }	Truro, . . .	72	462	34
C. H. Collins, . . . }				
John Myricks, . . . }				

Lobster Statistics — Concluded.

PROPRIETOR.	TOWN.	Number of Traps used.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
G. A. Rogers, . . . } J. A. Mayhew, . . . } G. W. Manter, . . . }	Tisbury, . . .	56	1,804	108
C. V. McMahan, . . . } M. F. Cleveland, . . . } L. E. Smith, . . . } F. M. Chase, . . . } David B. Smith, . . . } E. W. Cleveland, . . . } E. L. Chadwick, . . . }	Vineyard Haven,	135	2,935	429
Geo. A. Gifford, . . . } Wm. B. Whalen, . . . } S. M. Brightman, . . . }	Westport, . . .	90	957	19
Thomas Hinckley, . . . } John H. Kelley, . . . } P. M. Stewart, . . . } J. E. Flinkfelt, . . . } L. L. Adams, . . . } J. F. Cook, . . . } Alfred Nickerson, . . . } W. E. Nickerson, . . . } O. C. Grinnell, . . . }	Woods Holl, . . .	164	4,855	417
Totals (men, 309), . . .	. . . . .	14,086	646,499	15,638

Comparison of Returns of Lobster Fisheries.

YEAR.	Number of Men.	Number of Traps.	Number of Large Lobsters taken.	Number of Egg-bearing Lobsters liberated.
Increase of 1894 over 1893, . . .	54	3,291	—	2,156
Decrease of 1894 below 1893, . . .	—	—	52,898	—
Increase of 1895 over 1894, . . .	—	—	—	—
Decrease of 1895 below 1894, . . .	48	3,098	140,469	554
Increase of 1896 over 1895, . . .	76	4,836	39,031	—
Decrease of 1896 below 1895, . . .	—	—	—	3,873
Increase of 1897 over 1896, . . .	—	—	—	—
Decrease of 1897 below 1896, . . .	65	3,212	99,123	6,751
Increase of 1898 over 1897, . . .	—	—	—	—
Decrease of 1898 below 1897, . . .	48	2,634	175,860	3,788
Increase of 1899 over 1898, . . .	—	—	—	—
Decrease of 1899 below 1898, . . .	13	845	75,750	3,461
Increase of 1901 over 1900, . . .	—	—	1,836	—
Decrease of 1901 below 1900, . . .	18	1,264	—	832

[I.]

GILL AND SWEEP NET RETURNS, 1900.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.
D. W. Barnes,	Brewster,	-	12,356	-
Edward Holway,	Bournedale,	-	657,200	-
Alexander Sargent,	Bay View,	-	319,200	-
C. N. Simmons,	Berkley,	1,000	100,000	-
C. E. Bearse,	Centreville,	-	-	-
W. F. Hitchings,	Chatham,	-	-	-
C. C. Nickerson,				
A. W. Smith,				
F. W. Baker,				
R. F. Nickerson,				
B. E. Bassett,				
R. T. Bearse,	Dennis,	-	96,382	-
B. L. Jones,				
A. P. Howes,				
W. E. Greenleaf,	South Duxbury,	-	-	1,236
Fred D. Gage,				
Wm. F. Connolly,				
J. F. Gifford,	Dighton,	3,469	252,119	-
Isaac Symmes,				
E. D. Perry,				
C. N. Simmons,	Edgartown,	-	-	-
Antone Silva,				
Edwin Taylor,				
O. S. Crosby,	Hyannis,	-	-	-
A. W. Riley,				
L. B. Briggs,				
C. Briggs, Jr.,	Lanesville,	-	-	6,407
Wm. Harlow,				
W. K. Perry,				
R. T. Millett,	Manomet,	-	-	-
B. F. Stevens,				
J. A. Caswell,				
Joseph Thurlow,	Marion,	-	54,072	-
E. A. Fisher,				
C. S. Glidden,				
M. W. Dunham,	Marblehead,	-	150	1,400
E. W. Ramsdell,				
Geo. H. Hamblin,				
A. C. Swain,	Newburyport,	-	-	-
A. J. Barrett,				
John Watkins,				
Manuel Thomas,				
William Hamblin,				
G. W. Winslow,				
E. A. Fisher,	Nantucket,	-	-	-
C. S. Glidden,				
M. W. Dunham,				
E. W. Ramsdell,				
Geo. H. Hamblin,				
A. C. Swain,				

[I.]

GILL AND SWEEP NET RETURNS, 1900.

Menhaden.	Striped Bass.	Scup.	Squeteague.	Sea-bass.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	114	-	-	2,850	-	-	-	-
-	90	-	43	-	2,136	197	-	-	-	-
-	8	-	-	-	3,111	-	-	-	-	-
507	-	-	-	-	132	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	27,334	-	-	-	-	-
362	31	-	288	-	-	2,705	2	-	-	108
-	-	-	-	-	4,538	-	-	-	-	-
-	-	-	-	-	445	-	-	-	-	53
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	13,630	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	64,630
-	20	766	613	32	69,360	14,837	-	163	110	3,481

Gill and Sweep Net Returns—Continued.

PROPRIETOR.	TOWN.	Shad.	Alewives.	ea Herring.
John S. Smith,	Provincetown, . . .	112	24,495	65,263
Manuel Carter,				
G. H. Hurlburt,				
J. F. Silva,				
F. I. Sears,				
John Alexander,				
J. C. Lurten,				
J. R. Swaitz,				
J. A. Cobb,				
J. Newcomb,				
R. O. Kelley,				
G. A. Brown,				
Geo. Lewis,				
E. Q. Weeks,				
Boniface Silva,				
S. F. Alves,				
H. S. Cook,				
J. R. Williams,				
S. F. Atwood,				
M. V. Silva,				
Jesse Ghen,				
J. Q. Sparks,				
J. H. Little,				
Manuel Carter,				
Elisha Rich,				
A. A. Mayo,				
R. W. Cook,				
J. E. Weeks,				
L. R. Hatch,				
Wm. M. Wareham,				
J. G. Rand,				
E. W. Smith,				
J. W. Fuller,				
C. H. Emery,				
Richard Ryder,				
A. L. Daggett,				
J. D. Smith,				
J. H. Emery,				
Prince Freeman,				
H. L. Mayo,				
Wm. Joseph,				
W. W. Freeman,				
W. M. Elwell,				
Isaac Tyler,				
D. W. Atwood,				
B. R. Kelley,				
Joseph Patrick,				
A. M. Sparrow,				
Wm. Dyer,				
Stephen Holmes,	Plymouth,	-	-	-
G. B. and E. Williams,	Raynham,	1,696	34,591	-
F. E. Perry,	Sandwich,	-	-	491
C. H. Parker,				
Joseph Brady,				
John Elvander,				
C. N. Simmons,	Somerset,	300	50,000	-
J. C. Myricks,	Truro,	-	-	155
Silas Ryder,				
C. H. Collins,				
Gustavus King,	Taunton,	807	51,266	-
John R. Elliott,	Wellfleet,	1	200,669	-
W. P. Doane,				

Gill and Sweep Net Returns — Continued.

Menhaden.	Striped Bass.	Scup.	Squeteague.	Sea-bass.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
10,097	22	-	7,834	3	759,715	6,734	-	160,413	496	43,475
-	-	-	-	-	16	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	14,535	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	4,099	151	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	449	-	1,406	27	-	-	-	-

Gill and Sweep Net Returns — Concluded.

PROPRIETOR.	TOWN.	Shad.	Alewives.	Sea Herring.
Frank D. Grinnell,	Westport,	-	6,000	-
F. F. Besse,	Wareham,	23	346,000	-
Sylvanus Robbins,	Yarmouth,	-	551,687	-
Z. A. Sherman,				
H. E. Baker,				
Clarence Crowell,				
L. A. Sherman,				
A. H. Crowell,				
C. L. Nickerson,				
J. A. Ellis,				
Charles W. Ellis,				
Amos E. Arey,				
Herbert Lovell,				
Totals (119 men), . . . . .	. . . . .	7,408	2,756,187	74,952

Gill and Sweep Net Returns — Concluded.

Menhaden.	Striped Bass.	Scup.	Squeteague.	Sea-bass.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	6,000
10,966	171	766	9,341	35	902,626	27,501	2	160,676	606	117,747

[J.]

POUND AND WEIR RETURNS, 1900.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.
Alexander Sargent, . . .	Bay View, . . .	-	-	-	210,950	-
Edward Holway, . . .	Bournedale, . . .	-	228	-	-	2,400
T. L. Mayo & Co., . . .						
J. Eldredge and Son, . . .	Brewster, . . .	-	2,315	41,936	529,405	4,228
Thadæus Ellis, . . .						
A. S. Hall, . . .						
Fred Young, . . .	Chatham, . . .	-	3,051	1,566	167,600	15,465
J. A. Nickerson, . . .						
Reed and Loveland, . . .						
Geo. W. Crowell, . . .						
B. L. Jones, . . .	Cottage City, . . .	-	-	75	-	1,000
Bradley and Horton, . . .						
W. F. Flanders, . . .	Chilmark, . . .	-	2	116	-	1,615
James Tilton & Co., . . .						
Daniel Vincent, . . .						
D. W. West, . . .						
E. C. Mayhew, . . .						
M. H. Vincent, . . .	Cuttyhunk, . . .	-	-	90,127	-	155
J. H. & A. P. Tilton, . . .						
A. B. Veeder, . . .	Dennis, . . .	55	564	-	15,238	-
O. H. Shiverick, . . .						
Z. H. Baker, . . .						
J. M. Stone, . . .						
A. T. Chase, . . .						
D. S. Crowell, . . .	Eastham, . . .	-	1	17,500	353,200	3,600
N. M. Knowles, . . .						
F. W. Smith, . . .						
W. H. Nickerson, . . .						
R. H. Horton, . . .						
A. K. Higgins, . . .	Gay Head, . . .	-	8	950	1,505	367
E. D. Vanderhoop, . . .						
J. Mayhew & Co., . . .						
L. L. Vanderhoop, . . .						
L. S. Jeffers, . . .	Gosnold, . . .	-	13	6,500	-	15,585
Marine Biological Laboratory, . . .						
Joseph Parsons, . . .	Gloucester, . . .	1	646	63,521	532,760	1,000
Geo. W. Douglass, . . .						
Chas. F. Tarr, . . .						
F. A. Tarr, . . .						
Joseph Douglass, . . .						
W. H. Nelson, . . .	Harwich, . . .	-	-	-	-	-
N. B. Smith, . . .						
E. W. Heath, . . .	Manchester, . . .	-	21	132,174	351,800	3,000
David C. Jones, . . .						
J. K. Gannett, . . .	Minot, . . .	-	5	562	642	12

[J.]

POUND AND WEIR RETURNS, 1900.

Striped Bass.	Scup.	Squeteague.	Sea-bass.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	25,931	-	-	3,850	1,300	38,500
-	-	53,188	-	120,950	55	1,086	-	10,400	3,595
6,416	-	25,523	-	29,411	307	660	24,193	24,270	29,388
6	46,710	1,284	36	4,646	587	34	-	277,500	10,188
-	5,535	3,691	219	29	-	-	68	-	71
-	270,764	40,402	3,111	1,473	192	125	6,021	10,140	11,133
-	718,461	16,241	38,260	28	-	1,789	13,705	1,360	363,758
271	-	11,492	20	26,506	191	570	407	109,310	101
-	-	13,320	-	11,140	459	4,560	10,045	352,800	18,700
4	611,377	73,875	9,457	2,446	55	110	1,545	35,307	22,765
-	7,210	1,992	-	-	-	384	1,689	256,000	7,227
9	50	9	-	34,908	-	893	580	4,800	2,643
-	-	59	-	-	-	-	11,902	-	7,386
-	-	-	-	85,283	-	160	-	-	-
-	-	-	-	80	-	-	-	48	1,484

Pound and Weir Returns — Concluded.

PROPRIETOR.	TOWN.	Salmon.	Shad.	Alewives.	Sea Herring.	Menhaden.
T. L. Mayo & Co.,	Nahant, . . .	-	66	947	948,300	1,850
R. E. Conwell,	Provincetown, .	-	-	-	971,910	154,010
H. J. Lewis,						
T. K. Paine,						
H. N. Smith,						
A. L. Smith,	Revere, . . .	-	-	-	1,455,005	365
Consolidated Weir Company, .	Sandwich, . .	-	-	-	18,000	-
G. A. Phinney,	Sagamore, . .	-	-	-	16,200	-
W. F. Baker,	Truro, . . .	-	78	2,445	4,996,290	25,300
S. B. Atwood,						
D. B. Rich,						
Atkins Hughes,						
N. B. & S. B. Rich,						
R. A. Rich,	Tisbury, . . .	-	136	23,385	16,570	1,072
J. R. Walker,						
H. W. Daggett,						
Geo. H. Luce,						
H. N. Luce,						
Geo. W. Manter,						
O. S. Daggett,						
Wm. L. Pease,	Vineyard Haven,	-	-	1,350	-	560
John Pease & Co,						
Geo. Cleveland,	Yarmouth, . .	-	-	-	-	-
Eben Luce,						
Roland Kelley,						
Totals (70 men or firms),	56	7,134	383,154	10,585,375	231,584

Pound and Weir Returns — Concluded.

Striped Bass.	Scup.	Squeteague.	Sea-bass.	Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
-	-	-	-	11,967	7	47	187	200	775
12	-	6,157	-	173,125	25	150	7,147	372,850	33,868
-	-	26	-	5,696	-	-	-	825	2,555
-	-	2,934	-	8,499	12	149	19	5,200	1,221
-	-	6,800	-	8,333	-	420	100	32,000	15,651
1	11	54,090	101	921,786	51	313	60,641	426,216	189,375
288	1,002,067	44,076	6,015	1,555	468	1,001	10,167	40,410	12,611
2	42,575	1,997	226	1,194	10	120	7,307	25,108	3,556
16	-	3,785	-	4,336	55	-	200	-	-
7,025	2,704,760	360,941	57,415	1,479,322	2,474	12,571	159,773	1,986,044	777,051

[K.]

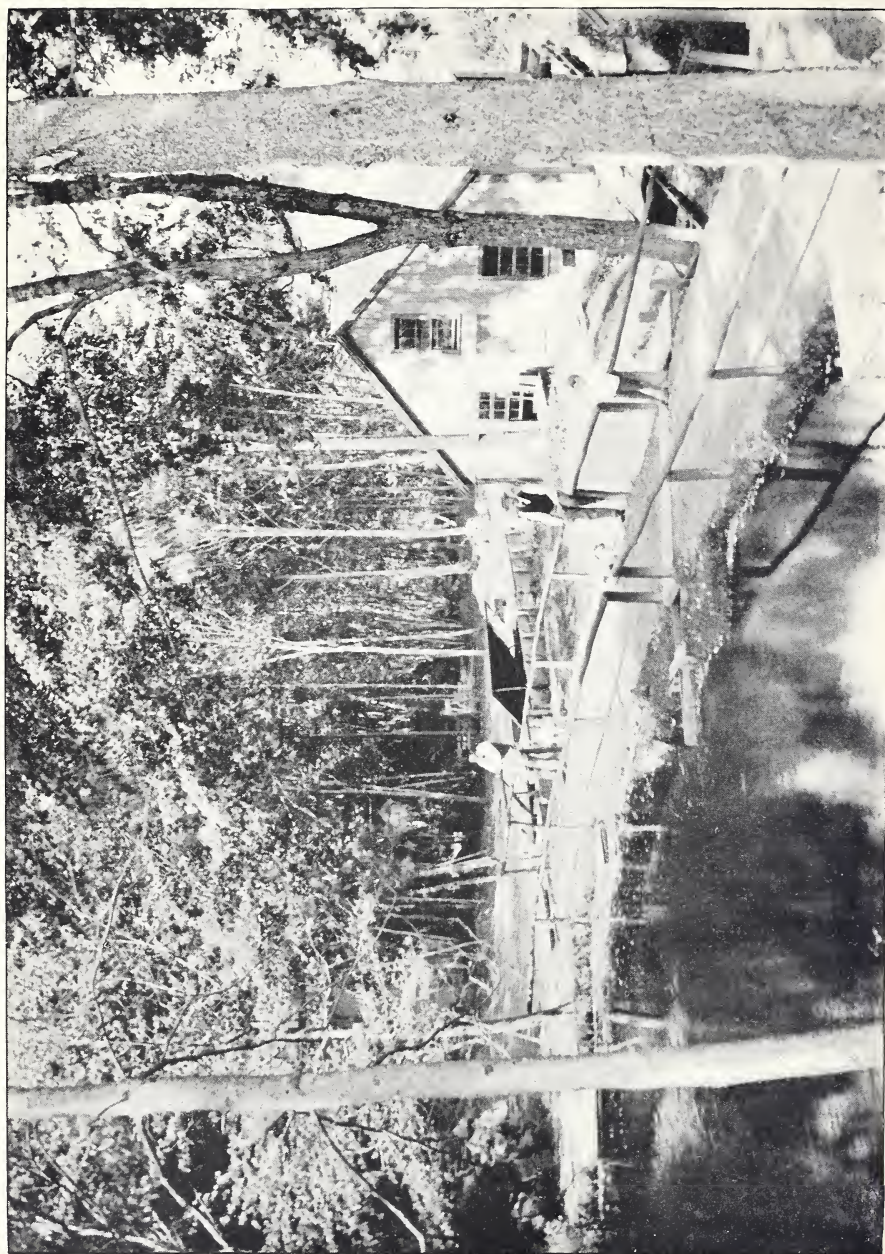
COMPARISON OF RETURNS FOR THE YEARS 1882 TO 1900, INCLUSIVE.

Year.	Fisheries.		No.	Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Soup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.																
1882,	Pounds and weirs,	.	85	27,769	1,420,919	1,201,449	8,102	4,219	1,991,480	67,266	3,289,512	310	133,805	40,512	114,843	4,016	-
1883,	"	.	87	5,994	1,250,263	339,116	3,048,022	2,876	1,848,583	92,671	4,756,490	246	60,182	35,481	184,387	5,361	-
1884,	"	.	93	5,392	715,886	2,806,233	4,908,381	6,950	1,641,129	74,876	1,440,486	99	109,694	23,929	288,930	33,980	-
1885,	"	.	80	18,988	1,066,148	6,564,619	6,255	1,365	1,240,630	17,746	2,643,190	24	32,575	47,281	317,082	7,711	128,698
1886,	"	.	58	15,874	1,012,802	1,364,684	48,910	2,412	1,086,243	3,226	1,290,466	20	17,315	47,400	261,595	11,570	572,384
1887,	"	.	62	14,014	1,453,820	1,713,846	127,681	1,233	1,153,504	13,742	1,069,609	109	44,204	89,075	304,492	7,615	812,380
1888,	"	.	83	50,037	1,054,607	6,665,698	1,202,777	2,455	1,448,461	127,602	2,877,768	115	38,376	63,214	368,917	10,805	2,716,892
1889,	"	.	103	25,591	1,417,950	17,000,308	1,203,669	4,924	1,331,673	36,043	825,152	824	17,287	69,719	289,993	20,163	1,859,924
1890,	"	.	88	22,961	1,198,561	4,432,690	2,911,970	5,302	334,423	43,938	1,297,264	1,242	60,633	25,637	210,476	9,180	958,872
1891,	"	.	87	26,587	2,039,107	10,643,504	1,976,856	1,413	3,160,446	98,749	3,045,814	323	28,355	33,476	389,416	17,511	569,794
1892,	"	.	83	14,658	1,031,160	15,739,505	124,917	1,410	2,421,985	70,085	4,706,233	47	16,296	45,881	346,772	8,069	1,588,890
1893,	"	.	99	13,440	816,341	16,895,378	1,615,025	561	2,216,406	304,896	2,283,685	2,011	15,842	34,894	284,122	2,643,123	1,419,042
1894,	"	.	105	6,754	1,378,703	15,361,317	1,152,174	1,849	394,224	300,875	4,127,338	269	14,799	28,715	195,643	2,086,309	1,242,595
1895,	"	.	102	14,823	1,000,958	22,182,517	1,052,983	2,465	1,464,697	145,331	736,937	58	26,924	43,527	356,933	3,006,544	4,209,153
1896,	"	.	101	10,616	1,269,475	11,063,681	1,663,241	1,098	3,683,149	269,345	1,770,146	77	9,995	31,569	194,804	3,800,121	4,032,706
1897,	"	.	79	7,491	833,128	9,468,543	1,661,313	6,810	2,523,723	274,616	1,252,887	26	12,736	50,705	174,672	1,199,983	2,610,875
1898,	"	.	58	3,734	191,682	8,783,002	494,282	1,396	1,413,812	330,047	2,024,294	51	7,158	9,505	286,322	930,573	2,564,028
1899,	"	.	60	13,622	706,533	11,844,242	72,021	434	1,386,291	294,396	3,223,184	18	1,772	34,228	247,632	1,700,168	452,960
1900,	"	.	70	7,134	383,155	10,585,375	231,584	7,025	2,704,760	360,941	1,479,322	-	2,474	12,571	156,773	1,986,044	834,552
1888,	Traps, fykes and irregular returns,	.	8	-	5,150	252,685	7,750	-	-	-	288,466	-	-	-	3,123	3,544	-
1889,	Traps, fykes and irregular returns,	.	15	2,994	89,516	1,212,942	184,239	64	86	54	64,938	1	2,600	339	2,246	2,060	76,073
1882,	Gill nets and sea seines,	.	133	1,738	424,630	310,611	633	1,427	99,046	4,205	587,087	87	191,668	6,245	33,487	3,033	-
1883,	"	.	112	26	41,996	79,689	937,627	838	6,294	1,102	332,555	4	131,815	966	12,681	1,755	-
1884,	"	.	85	6,544	67,312	541,689	1,526	632	7,855	3,254	216,829	6	136,068	1,578	19,031	1,426	-
1885,	"	.	78	444	117,674	82,151	9,546	601	13,814	1,656	183,156	9	101,371	233	30,948	967	5,454
1886,	"	.	49	22	397,727	151,782	311	1,524	26,059	42	75,463	9	32,343	1,039	14,592	21,670	17,326
1887,	"	.	35	801	347,109	779,211	57	601	676	2,586	177,401	3	20,018	487	14,206	30,416	4,708
1888,	"	.	137	142	465,934	734,374	94,310	1,349	7,704	2,027	633,627	2,172	199,546	1,314	30,738	18,701	52,049
1889,	"	.	208	4,533	401,445	357,054	202,094	1,421	4,062	4,545	271,017	157	55,718	2,576	35,745	199,360	80,008

Comparison of Returns for the Years 1882 to 1900, Inclusive — Concluded.

Year.	Fisheries.		Shad.	Alewives.	Sea Herring.	Menhaden.	Striped Bass.	Scup.	Squeteague.	Mackerel.	Spanish Mackerel.	Bluefish.	Tautog.	Flounders and Flatfish.	Squid.	Other Edible or Bait Fish.
	Kind.	No.														
	Increase of 1894 over 1893, Decrease of 1894 below 1893,	74	-	1,537,724	-	-	1,645	-	-	-	2,308,825	27,918	-	-	519,320	7,115,998
	Increase of 1895 over 1894, Decrease of 1895 below 1894,	-	5,790	-	3,438,445	2,625,442	-	1,822,310	3,962	-	631	-	6,051	93,868	-	-
	Increase of 1896 over 1895, Decrease of 1896 below 1895,	44	24,146	2,837,706	8,041,852	320,708	472	1,071,750	154,871	3,753,155	1,390	50,568	407,172	206,622	981,241	4,842,226
	Increase of 1897 over 1896, Decrease of 1897 below 1896,	42	-	1,823,516	-	589,126	966	2,198,080	122,978	1,230,688	37	29,411	-	-	761,119	-
	Increase of 1898 over 1897, Decrease of 1898 below 1897,	-	11,676	-	5,892,844	595,126	966	-	-	-	-	-	393,539	61,621	-	9,257,971
	Increase of 1899 over 1898, Decrease of 1899 below 1898,	52	4,518	2,121,825	434,231	958,810	7,055	1,135,981	4,694	765,249	72	12,301	8,254	211,411	-	-
	Increase of 1900 over 1899, Decrease of 1900 below 1899,	-	-	-	-	-	-	-	57,553	679,122	45	-	-	-	2,600,720	906,833
	Increase of 1898 over 1897, Decrease of 1898 below 1897,	60	13,306	421,534	8,883,824	1,226,281	6,305	1,113,820	-	-	-	24,666	32,448	23,978	305,183	463,282
	Increase of 1899 over 1898, Decrease of 1899 below 1898,	15	40,962	502,227	3,403,147	597,795	1,653	28,277	36,322	1,256,428	-	26,294	21,791	53,826	832,410	-
	Increase of 1900 over 1899, Decrease of 1900 below 1899,	9	-	551,364	-	144,572	6,386	1,319,537	73,922	-	-	9,650	-	-	223,650	-
			33,750	-	1,895,620	-	-	-	-	1,139,797	-	-	27,575	215,040	-	54,093

* Sand eels and small mackerel — ordinarily termed "spikes" — are not included in these returns. The eels are used in large quantities for bait, and probably a considerable percentage of "spikes" are canned for food.



STATE HATCHERY, SUTTON, MASS.

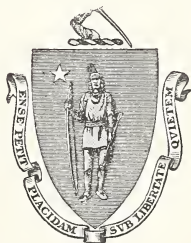
REPORT OF THE COMMISSIONERS

ON

INLAND FISHERIES AND GAME

FOR THE

YEAR ENDING DECEMBER 31, 1901.



BOSTON:

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Commonwealth of Massachusetts.

To His Excellency the Governor and Honorable Council.

The Commissioners on Inland Fisheries and Game respectfully submit their thirty-sixth annual report.

GENERAL CONSIDERATIONS.

Change in Designation of Commission. — The change in the designation of this commission, at the recent special session of the Legislature for the codification of laws of the Commonwealth, may be considered wise and important legislation. While the title, Commissioners on Inland Fisheries and Game, may have been formerly appropriate and satisfactory, it is evident that it is no longer properly applicable, when the duties and responsibilities of the commission have been largely enhanced, so that they cover the sea-coast fisheries, and when it should be in a position to present facts or suggestions which may prove beneficial to the commercial fisheries generally. That the commission has outgrown the designation it has heretofore held is patent, and that it has opportunity for further expansion under the title it will have after this year is also apparent. For, while it is true that all branches of the work relating to inland fisheries and game should be carried on with all possible vigor and effectiveness, it is also true that a State having such important sea fisheries as Massachusetts has should not be officially indifferent to their welfare. Public welfare demands that the commission do whatever it can, through inquiry or publication, to promote industries which in the past were stepping stones to the important commercial position now held by this Commonwealth, and still occupy a position of consequence in our industrial life.

In order, however, that this may be accomplished, new legislation will be required, authorizing the appointment, by the

commission, of assistants, with suitable designations, for the purpose of making scientific or semi-scientific investigations, which a proper consideration of the fisheries may make necessary. At the present time there is no law which will admit of such an appointment, even when the services of scientific men or technical experts are tendered to the commission without charge by public-spirited citizens. It should be only necessary to invite attention to a condition so utterly at variance with the general attitude of the State towards its industries, to insure desired action by the Legislature.

Expansion of the Work. — The work of the commission has expanded materially in various directions. The facilities for hatching and rearing fish have been increased or perfected, as will be shown in detail elsewhere, and the output of young fish this year is about four times as great as in any year previous to 1900, notwithstanding many of those distributed this season were fingerlings and yearlings, whereas only fry were formerly produced.

The number of Mongolian pheasants liberated is about three and a half times as many as were generally sent out before. The Belgian hares put out to stock the covers in various sections of the State numbered more than two-thirds as many as the pheasants. Thus the aggregate of game birds and animals liberated was fully five times as many as have usually been put out.

Provision has been made to increase the future output of fish, birds and animals.

Valuable statistics of the shore fisheries have been gathered and tabulated. Never before has it been practicable for the commission to publish figures relating to fisheries which had real statistical value.

The commission has had the active co-operation of the Institute of Technology in the study of the difficult problems bearing on the lobster industry. It has been able to contribute to the scientific researches of various organizations, among which may be mentioned the Museum of Comparative Zoölogy at Cambridge.

Correspondence with various European countries and with Japan has been instituted for the purpose of securing information which may prove helpful to our fishery industries, and the

chairman has lectured on necessary improvements of the sea fisheries.

Additions have been made to the collections illustrating the work of the commission. A series of photographs of the hatcheries and their surroundings, including ponds, pheasantries, etc., has been obtained. Fourteen of these have been used for bromide enlargements, and these have been suitably framed. Contributions to the collection have been received from some of the deputies. The head of a buck deer which was illegally killed in this State has been mounted.

The advantage of having a collection, such as it is hoped may sometime be acquired by the commission, can scarcely be over-estimated. Its real practical value has already been demonstrated, even while it is yet very embryonic.

Appropriations. — The total amount appropriated for the conduct of the commission's work in its various branches was \$21,002. It is not possible at this time to show the amount expended. It can only be said that the appropriation of \$1,000, made for fishways in accordance with chapter 344, Acts of 1900, has not been drawn upon and will consequently revert to the treasury of the Commonwealth.

Recommendation regarding Appropriation. — The commissioners recommend that future appropriation bills shall contain a provision authorizing them to transfer ten per cent. of any appropriation for a specific purpose — the enforcement of law, for instance — to some other appropriation, providing the exigencies of the work and the public welfare seem to demand it. If this can be done, or a special act embodying such a provision can be enacted, much advantage to the work will result, and the real purpose of the Legislature in appropriating the aggregate sum will be better served.

Free Distribution of Fish, Birds and Animals. — The commission is impressed with the idea that the free distribution of fish, birds and animals it breeds or rears will be an important step forward in the effort to restock our inland waters and our covers. This is done in other States, — certainly in nearly all of them that make any pretence of carrying on such work upon a scale commensurate with its importance. Not a few of the States have cars of their own for distributing fish and fry, with the most approved equipment and trained crews. If it is worth

while for the State to breed fish or game it is certainly important that the full result of its work in this direction shall be attained by making the commission responsible for distribution. This is in harmony with the most advanced thought and action of the foremost men and commonwealths in this country, not to speak of other countries.

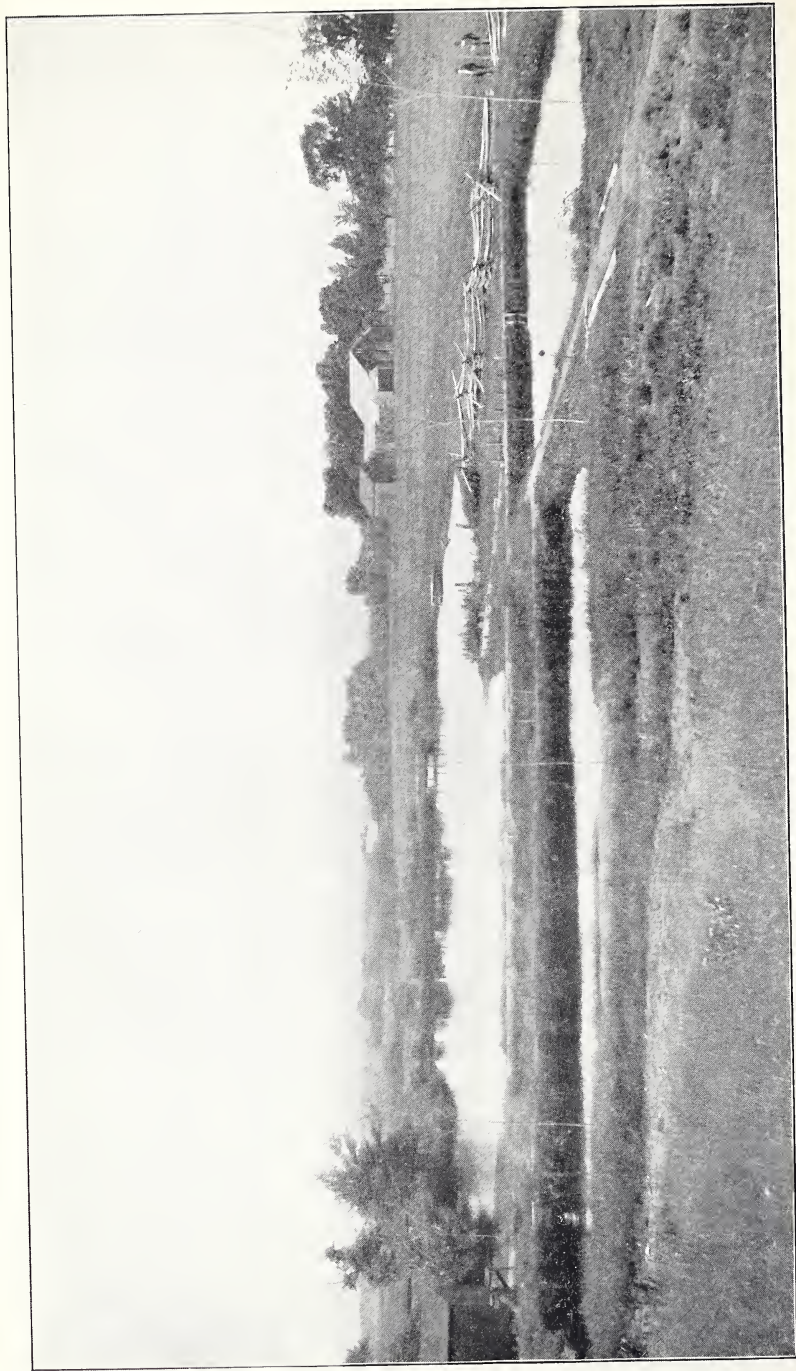
Manifestly it is unwise to longer depend on fish being distributed by those not responsible to the commission, for while much may have been accomplished under the system heretofore prevailing, whereby fish are delivered to applicants at the hatcheries, it is scarcely to be expected that all will be experts in the care of fish, and considerable loss may result in consequence of inexperience, even when individuals are honestly desirous of carrying out the purposes of the commission. And whether or not there is foundation for disquieting assertions, as to the disposition of some of the fish, it certainly will be an advantage to know beyond question that fish intended for public waters, where alone they should be put, have not been used to stock private reserves, from which the public may be excluded.

It is imperative that birds and rabbits be liberated by the deputies of the commission, and this has been done, at some sacrifice of other interests. It is almost equally important that fish should also be distributed in like manner. The best results cannot otherwise be obtained.

FISH CULTURE.

Extent of Work, etc. — The work embraced under this head, which includes many things beside fish culture proper, has been carried on by the commission during the current year upon a more comprehensive scale than ever before. This applies not only to the magnitude of the work, and the results accomplished, but also to the fact that it has been broadened in the matter of species, propagated or reared on a large scale, and there has been much expansion of effort in other directions bearing strictly on the question of the preservation and increase of food fish in the Commonwealth.

The organization of this work as established last year has been continued. Commissioner Delano, the superintendent of hatcheries, has continuously given his active personal attention



PONDS AT HADLEY FISH HATCHING STATION. — Artificial rearing ponds in foreground. One on left fed partly by springs.

to matters relating more strictly to fish culture proper, particularly in connection with the conduct and development of resources at the hatcheries, and in the distribution of fish, not only for stocking in the ordinary way, but under special acts which make it obligatory upon the commission to stock brooks and ponds and to regulate the fishing therein for a period not exceeding three years. In addition to this, he has co-operated with the chairman in the examination of dams and fishways, and, to a more limited extent, in the examination of ponds.

With one exception, of which detailed mention will be made in its proper place, the results secured have been satisfactory and far beyond anything heretofore attained in this State; so much so that, even with the obstacles encountered at Hadley, the output of fry, fingerlings and adult fish is much greater than ever before. In the mean time the future possibilities have been so largely advanced through the rearing of brood fish that we may confidently look forward to a much larger increase next year, and in subsequent years there is reasonable probability that the capacity of the State hatcheries will be taxed to their utmost. Present arrangements contemplate two broods of fish annually instead of one, and a consequent increase of the output of the hatcheries, which will be many times greater than heretofore. This has been made possible by the installation, at Sutton and Hadley, of hatching jars and glass aquaria for breeding the pike perch or hatching the eggs of other freshwater species which can be incubated in jars. The fish cultural plans also contemplate at least three periods for stocking with fish instead of one. Trout fry will first be put out in the spring; these will be followed by pike perch fry, and possibly by yearling trout, and in the fall, fingerlings of various species of trout and landlocked salmon will be distributed. This plan was followed the present year with most satisfactory results, and there is no reason to doubt that it will prove equally efficient in the future, although it will doubtless be varied somewhat, especially by including other species, notably the white perch, for the fall distribution.

Appropriation. — Owing to the fact that the breeding and rearing of game birds and small game animals are carried on by the commission in connection with the hatcheries, the appropriation for fish culture was made applicable to these also. The

sum of \$4,877 was appropriated "for the propagation and distribution of fish, birds and other animals, running expenses, and the rent and maintenance of hatcheries." While this has sufficed, the expense attendant upon the distribution of birds and animals was much larger than anticipated, owing to the increase in output and consequently the closest economy in other directions was necessary.

In addition to the above-named amount \$500 was appropriated for stocking ponds, under chapter 208, Acts of 1897, and a similar sum for stocking brooks, in accordance with chapter 284, Acts of 1900. This makes a total of \$5,877 for fish cultural purposes chiefly, but something less than this will be used, though the exact amount can be determined only after the close of the year, or after the publication of this report.

Output of Fish.—About the usual quantity of trout fry, 865,000, was distributed in the spring. In addition to these, 2,600,000 pike perch fry, hatched at the Sutton and Hadley stations from eggs received from the United States Fish Commission, were put into ponds shortly after the brooks were stocked with trout fry. Besides these, 11,500 yearling and 44,750 fingerling brook trout have been put into the brooks, and 15,000 rainbow trout fingerlings, 13,000 landlocked salmon fingerlings, 586 yearling Loch Leven trout and 250 four-year-old brook trout have been distributed in various ponds. This makes a total of 3,550,086 fish distributed by the commission this year for stocking the inland waters of the State. It is noteworthy, too, that more than 80,000 of the fish above enumerated were fingerlings and yearlings, concededly more valuable for stocking purposes than ten times as many fry. Mention may also be made of the reservation of several thousands of fingerlings and yearlings for increasing the stock of brood fish at the two principal hatcheries.

Enemies to Trout.—The work of rearing trout and keeping a supply of brood fish is made more or less difficult by the presence of various enemies to these fish at the hatching stations. Among these are minks, fish hawks, kingfishers, eels and water snakes. To what extent minks have preyed on trout in the hatchery ponds is a matter of conjecture. Superintendent Tripp caught one or more at the Hadley station, and their

presence may account for some decimation of trout that has been noticed, although this may be due to eels.

On one occasion during the summer, while Mr. Tripp was engaged in the attempt to sink a well some little distance from the hatchery at Hadley, and on the opposite side of the building from the pond wherein the brood trout are kept, he chanced to turn in the direction of the pond and saw a large fish hawk just rising from the water with a trout in its claws. How often this had been done can only be conjectured.

In one of the small rearing pools, where Mr. Tripp had been endeavoring to raise some trout fingerlings, he noticed that the young fish grew less and less from day to day, but as there were no dead fish on the bottom of the pool he was at a loss to account for the gradual diminution. On two occasions he drew the water nearly out of the pool in the endeavor to discover the cause, but he could find no trace of anything which would give him a clue. But as the trout continued to disappear, he finally drew the pool down for the third time, and covered the bottom of it with fine, white sand, thinking that might possibly aid him in securing information which he had previously failed to obtain. He was correct in this conclusion, for the sand led to the discovery of two eels, which were dragged from the mud in the bottom of the pool. One was sixteen inches long and the other two feet or more in length. The discovery of these solved the problem of the disappearance of trout.

Fish hawks have not been known to make predatory attacks on trout at the Sutton hatchery this year, but formerly they were occasionally troublesome there. But the trout are not exempt from attacks of kingfishers. One day early in October, when the chairman and superintendent of hatcheries were visiting the hatchery, a kingfisher was caught in a trap that is always kept set in summer for these birds.

On the same day, a Mr. Wilson of Worcester, who was out to the hatchery for the purpose of securing some frogs for scientific purposes, succeeded in killing a water snake about forty-two inches long and approximately five inches in circumference. This snake was killed in immediate proximity to the rearing ponds, near the hatchery, where the young trout are being raised for breeders. When opened, the snake was found to have four trout in its stomach, each ranging from five to

seven inches in length. Two of them were *Lake Erlen trout*, one six and one-half inches and one *brook trout*, and the other two were brook trout.

Mr. Merrill says that "formerly many of these snakes were killed about the upper ponds, but this year they have been less plentiful there, and not one has been killed. Their absence may account in part for the increased number of fingerlings in those ponds."

Work at the Hatcheries. — In various directions an effort has been made to enlarge and perfect the facilities for conducting fish-cultural and other work at the stations on an expanding scale. Mention is made elsewhere of the result of breeding birds and rabbits at Winchester and Sutton, and further allusion to that may be omitted here. Important improvements have been made at the Sutton hatchery by repairing the wooden pens, which were in bad condition; making changes in the supply pipe that carries water into the hatchery; building a dam and screen in the main brook below the hatchery, so that young fish can be kept there for renewing the brood stock in the large pond whenever necessary; repainting all the buildings and otherwise improving them. The hatchery has been equipped with a dozen Chase jars and necessary piping, glass aquaria, etc., for their successful operation.

An effort has been made to secure one or more flowing wells at Hadley, situated so as to supply the hatchery with an unfailing supply of spring water of nearly uniform temperature, suitable for breeding and rearing trout. All attempts have failed, however, despite the labor expended, and the question of a supply of spring water still remains the most important problem connected with the hatchery. It is of so much consequence that an appropriation will be asked for to enable the commission to drive an artesian well, without which there seems little prospect of making this station suitable for rearing fish, and it may not always be relied on with certainty for hatching them, since it is conceivable that the water supply may sometimes fail, even in winter, though of course this is improbable.

The hatchery has been equipped with glass hatching jars, etc., similar in number and type to those at Sutton, and, except for its lack of a supply of suitable water, is in first-class con-

dition for breeding large numbers of fish. It is intended to double the jar-hatching capacity at both stations next year, this being absolutely necessary.

Rearing Young Fish. — The effort to rear trout and land-locked salmon to fingerlings or larger, which was inaugurated last year, was continued on a larger scale this year. The success attained at Sutton was notable and gratifying. At Hadley, however, the result was disastrous and disappointing. This was due almost wholly to the lack of spring water of nearly uniform temperature. It was hoped and expected that the brook water, which runs through the land controlled by the commission, would prove suitable for rearing brook trout to fingerlings, especially as its temperature is generally not high, and the fluctuations were not deemed extreme for surface water. A long penstock brought a supply of the brook water, and fed it into a system of rearing tubs placed on each side, so that each tub received a stream direct, the water in no case passing from one tub to another. The volume of water was ample; it was also swift and seemed to be well aerated. Every precaution was taken to insure its purity. But as the season advanced and the weather grew warm the brook trout, which at first appeared to be doing well, were attacked with a form of gill disease, and it soon became evident that the water was infested with a very destructive parasite. All the ordinary and well-known remedies were tried, but nothing availed to permanently check the trouble, the result being that only a few of the young brook trout survived.

The rainbow trout did better, probably because they are less easily affected by fluctuation of temperature, or a moderate rise of it, and also because they are evidently not so susceptible as brook trout are to attacks of this particular parasite. Still, they suffered and did not thrive as well as at Sutton. Some rainbow trout in their second year, confined in pens where the temperature was considerably higher than in the tubs, seemed to do well, and a lot of two-year-old brown trout in one of the pools above the main pond, which is fed partly by the brook and partly by springs, were healthy and grew finely. They were not troubled by the gill parasite that killed the young brook trout in such large numbers.

The year's work at Hadley has demonstrated the feasibility

of successfully rearing brood fish from trout, which may be taken there of the size of yearlings, or thereabouts; but the rearing of fingerlings from brook trout fry, which is still more important, cannot apparently be accomplished without excessive loss, unless it is practicable to secure a supply of spring water. Much better results may be anticipated in rearing rainbow trout, especially if the ravages of the gill parasite can be minimized. Efforts will be made the coming year to determine definitely what can be done in this direction.

Certain improvements at Sutton are much needed. The floor of the hatchery is in bad condition and repairs should be made next year. Cattle from adjoining pastures have done more or less damage to the property of the commission at this station, and it is considered imperatively necessary to build a wire fence around the State land.

At Winchester the pipe which supplies the hatchery with water is worn out, and should be replaced by a new one.

Rearing Ponds, etc. — At Hadley, a new rearing pond, fifty feet by seventy-five feet, has been built during the present year above the main pond. This is fed in part by the brook, which also supplies the tub system, the main pond or other pools; but the supply of water has been largely increased in volume and fitness by driving pipes some distance into the alluvial bottom of the artificial pool. Something additional has been done to perfect the rearing pond system at the station, and the superintendent has worked zealously to improve conditions, doing a large part of the manual labor himself. His effort to find a flowing well for the hatching house has, however, demanded even a larger amount of labor, and unfortunately this has been so far unproductive.

The single well which has heretofore supplied the limited amount of water used in the hatchery was believed to be an unfailing spring, and when the site was selected there was full reliance on a continuous supply of water, sufficient in volume for hatching purposes, beyond which nothing was then contemplated. But the long-continued hot, dry periods of the past two summers developed the fact that the well, never sufficient to furnish the volume of water required for hatching operations such as are now planned for the near future, — to the full ca-

capacity of the hatchery, — is not an unfailing spring, but is only what may be termed a surface well, therefore subject to fluctuation and liable to go nearly dry.

As already indicated, several attempts have been made during the year to increase the supply of water by digging or driving wells on ground sufficiently high to permit the water to flow to the hatchery by gravitation; but in every instance a strata of hard-pan has been struck about ten feet below the surface. This can, of course, be penetrated only by drilling, but there is apparently no other way of tapping a spring. That there may be some uncertainty as to the result is recognized, but the contour of the adjacent hills inspires confidence in the attempt to secure an unfailing supply of spring water, of practically unvarying temperature, by sinking an artesian well to a considerable depth. If such an attempt should prove successful, the water thus obtained would not only supply the hatchery, but could also be utilized for rearing trout fry to fingerlings. Everything depends on it, and until this question is settled it is considered inadvisable to make any further attempt to develop the station along the lines marked out.

The stock of brood fish at Hadley are in a healthy condition; it is believed few have died during the year. It may, however, be said that the result might have been different except for the flowing wells in one of the upper rearing ponds, to which allusion has already been made. Without these it is very doubtful if the adult fish in the large pond could have been saved, for the overflow of the artificial pool added considerably to the water supply in the main pond, and also improved the temperature materially.

The rearing pond system at Sutton has been improved to the extent of enlarging one of the upper pools. This was substantially all that could be done, for about all the available space on the State land suitable for rearing ponds has been utilized. Additional advancement along this line at that station is contingent upon the purchase of a few acres of adjacent swamp land, of nominal value. This, although of small extent, belongs to two estates, and the determination of exact boundaries is necessary before conveyance can be made. Meanwhile, the owners have very courteously permitted the partial occu-

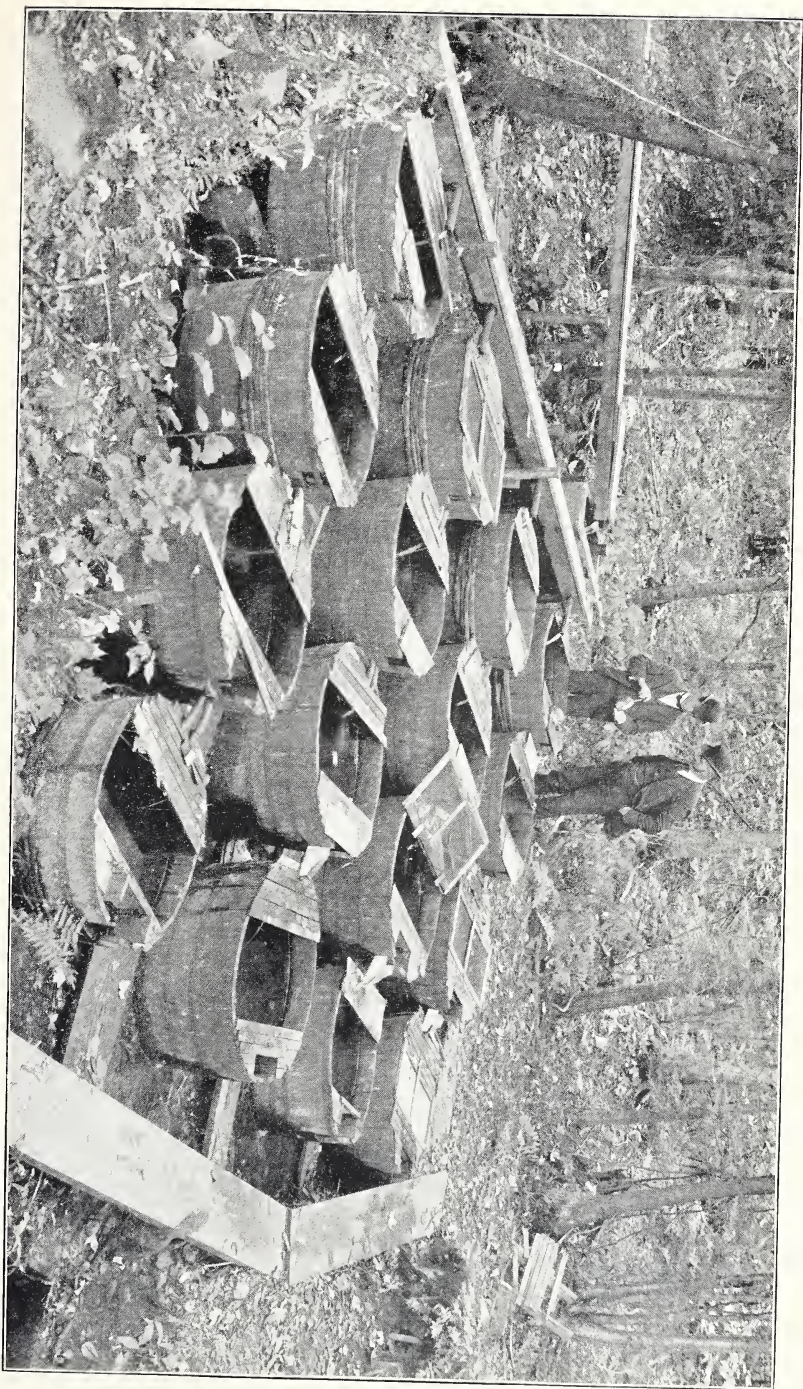
pancy of it by the commission, free of charge, — an act on their part which has materially aided in the satisfactory conduct of the work at this station.

The tub system, for raising trout fry to fingerlings, has worked admirably at Sutton, where the water is uniformly pure and of a low temperature. A portion of the tubs, sixteen in number, were installed in a group on the land referred to just beyond the boundaries of the State land. They sat in a slight depression, and were so placed that the water brought through a penstock to each one of the four higher tubs, passed by overflow into the three tubs below, one after the other. Thus a small stream sufficed for four tubs, and no doubt exists that the same volume of water might continue on to several other tubs with equally satisfactory results.

The experience of two years at Sutton has demonstrated beyond question that, where a fair supply of cool spring water is obtainable, the tub system is superior to any other for rearing fry to fingerlings. It gives the best results because the fish are protected from enemies at a time when they are most in need of protection; for the reason that dead fish, stale food, etc., can be easily removed, thus insuring the purity of the water; and ample shade, so much needed by trout, can always be provided by the covers, which, being partially of wire netting, readily admit all requisite air and light. By no other system we are familiar with can a limited supply of water produce such large results. In addition, it is unquestionably the cheapest artificial arrangement for rearing trout now available.

Brood Fish. — There are now available about 6,000 brood trout, ranging from eighteen months upwards in age. These are in fine condition. They consist of brook trout, brown trout and rainbow trout chiefly, though there are only a few of the latter old enough to spawn. There are also a few Loch Leven trout.

Measures have been taken to maintain and increase the brood stock of fish by keeping in reserve sufficient young trout to meet all anticipated needs. It will require a little time to attain the maximum aimed at, especially so far as the rainbow trout is concerned, since this is much older than the brook trout when it begins to yield eggs. But the rapid growth of



THE "TUB SYSTEM" AT THE SUTTON HATCHERY. — Examining young trout.

the few rainbows at Sutton, and the fact that the species is prolific, yielding 2,500 to 3,000 eggs at six years of age, are reasons for anticipating success when the young fish we now have reach the breeding age of three years.

Another year the yield of eggs from brook trout and brown trout should be large, but it will be about two years or more before the rainbow trout will attain sexual maturity.

Mention should not be omitted of the fact that a very few landlocked salmon have been retained at Sutton. These were two years old last spring, and the experiment of attempting to raise them to a breeding age is an interesting one.

Taking Trout Eggs.—The work of taking and impregnating trout eggs at the stations in Sutton and Hadley began about November 1, as usual, and 1,021,000 eggs have been obtained. This is considerably in excess of the number secured at the same date last year, and justifies the expectation that the total yield will be a record in this branch of the commission's work.

Introduction of New Species.—The commission has made a notable advance during the year in the work embraced under this head, and at no time in its history have the results attained in this direction even approximated those of which mention will be made. The fact, too, that what has been already accomplished makes probable still greater results in the future, adds to the importance of the work done, and suggests possibilities in the restocking of our inland waters not heretofore deemed attainable.

In point of numbers, the stocking of our ponds with 2,600,000 fry of the pike perch (*Stizostedion vitreum*) is the most important event of the year, in the introduction of new species. This species was described at some length in our last report. The fact that information has indirectly reached the commission that young pike perch were taken last spring or summer in Mystic Pond, where they had been planted as fry the previous year, suggests the probability of the species thriving in some of our ponds at least. While no member of the commission saw the fish caught in Mystic Pond, the statement seemed to be well authenticated that boys fishing there took some fish which "looked like pickerel but were not pickerel." This would seem to indicate plainly enough that they caught young pike

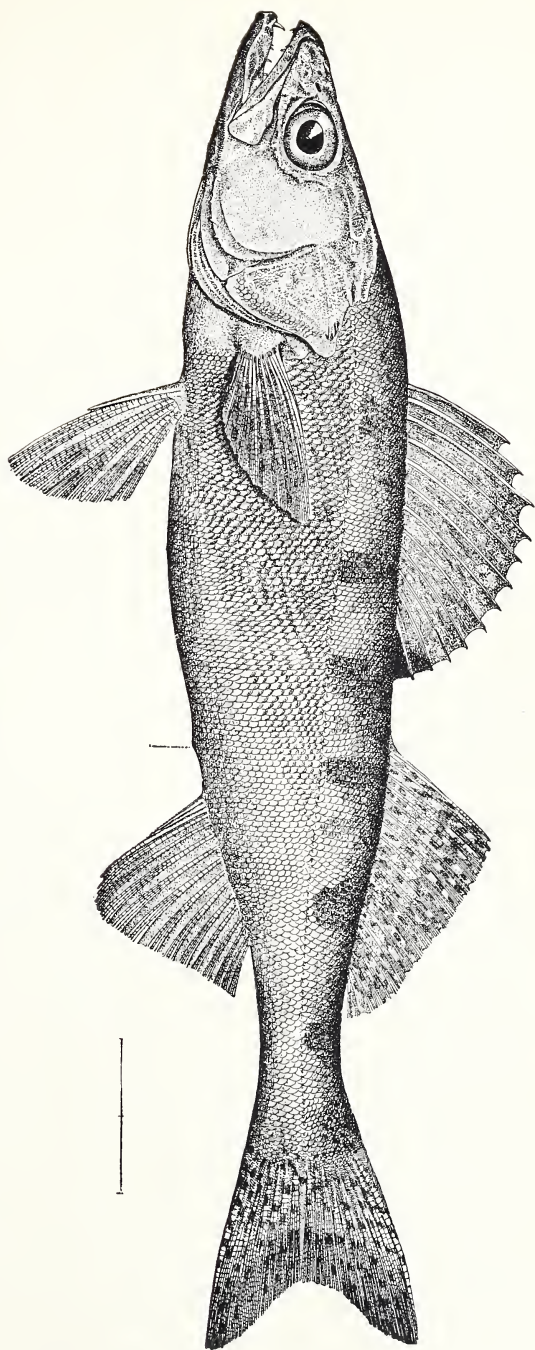
perch, for no other fish in Massachusetts waters would answer to that description.

If, then, the pike perch can be successfully introduced, it is evident that much greater results may reasonably be anticipated from plants of 200,000 or 500,000 fish in a pond, than by putting into it from 200 to 400 white perch, even if the latter are half grown. And it may be said here that the pike perch is a true perch, — the largest of the perch family, — and that in food and game qualities it is conceded to equal or surpass any of the smaller varieties.

There are, however, some of our ponds in which the conditions are not suitable for the pike perch, and others which it is desirable to stock with several other species of fish. For this reason it has been deemed desirable to attempt stocking some of the ponds with fingerlings of the rainbow trout (*Salmo irideus*), a species which is believed to be peculiarly fitted to the conditions which obtain in a majority of the ponds in this State. There is, indeed, reason for anticipating greater success with this than with any other trout in the attempt to stock our ponds with a species which is alike desirable for food and game purposes. As is well known, the rainbow trout, though indigenous to the Pacific coast waters, has been successfully introduced in many of the eastern and central States. It thrives under conditions where our native brook trout could not exist, especially so far as temperature is concerned, and for that reason may also be used for stocking brooks which, because of defoliation, have become so warm that brook trout can no longer live in them. It may not be generally known that a condition like this prevails in Massachusetts, but such is a fact, as will be shown by the following extract from a letter received from Deputy George E. Whitehead of Millbury : —

I would say that the brook where I propose to try the rainbow trout is ruined so far as *Fontinalis* is concerned. I know of 35,000 fry that have been placed there inside of seven years. There are only a few very small brook trout in the extreme upper part of the brook. The lumberman with his steam saw-mill on wheels is responsible. Where there used to be two miles of heavy growth timber, it is now bare of everything but scrubs. There are three miles of meadows and mowing land below where it was once good trout fishing. The water is now so warm that our brook trout will not live there except

STIZOSTEDION VITREUM. — Pike Perch or Wall-eyed Pike.



very early in the spring. Now it looks to me as if the rainbow trout should find congenial quarters. The brook is mostly hard gravel bottom with just enough rapids to re-aërate the water. It has been my impression that the rainbows would inhabit the lower reaches of this brook and not interfere in any way with the few brook trout that are in the upper and colder waters. The long stretch of water that is now unproductive would then be made to produce a fish that is but little inferior to the brook trout.

Many of our ponds have a temperature too high for any of the salmonidæ to thrive in except it be the rainbow trout, and as these ponds abound with worms and insect larvæ, which constitute the favorite food of this species, there is good reason for thinking it will do well, since, as already stated, it is not unfavorably affected by moderately warm water. It has, however, been the aim of the commission to put this trout in ponds having a considerable variation of temperature in mid-summer, at different depths, and thus to give it an opportunity to select the conditions most agreeable to it.

Under favorable environments the rainbow trout grows rapidly, and attains a maximum of 12 or 13 pounds, but it is generally much smaller if the water is cold. Fish of this species in the pond at the State fish hatchery in Sutton weighed $3\frac{1}{4}$ pounds when two and a half years old. It is reputed to be a fine food fish, also a good biter and a sturdy fighter, though it must be considered secondary in food and game qualities to our native brook trout, which is almost without a peer in these regards. Its special recommendation is that it seems well adapted to many of our ponds. If this assumption proves true, and it is practicable to have our ponds fairly well stocked with a fish that grows to the size of a salmon under favorable conditions; that is graceful in outline, beautiful in color, and possesses other desirable qualifications, it is evident a material advance in the State's fish-cultural work will have been accomplished. With this end in view steps have been taken to secure a supply of brood fish of this species at our hatching stations in Sutton and Hadley, and an effort will be made to rear to the fingerling size the rainbow trout bred at our hatcheries.

The commission is likewise preparing to extensively breed the European brown trout (*S. fario*), and it now has a lot of fine two-year-old fish of this species from which it is expected

a considerable yield of eggs will be obtained at the close of the present year.

The brown trout was introduced in the United States in 1883, and since then has been widely distributed, so that now it is well established in many States where the conditions are suitable for it. It is essentially a brook trout, requires cool water, but is reputed to thrive at the mouths of streams tributary to ponds or lakes. The experiment will be made of putting it into some of our ponds having a low temperature, and with streams running into them. It is also possible it may thrive in some of our brooks where the conditions are no longer suitable for native brook trout.

This species has been credited with attaining a weight of 22 pounds under favorable conditions. Among the brown trout in the aquarial exhibit of Wisconsin at the World's Columbian Exposition were numerous specimens which must have weighed from 9 to 11 pounds, although a weight of 5 or 6 pounds may be considered a good average. It is a matter of record that "in the United States, a wild specimen, seven years old, weighed about 11 pounds."*

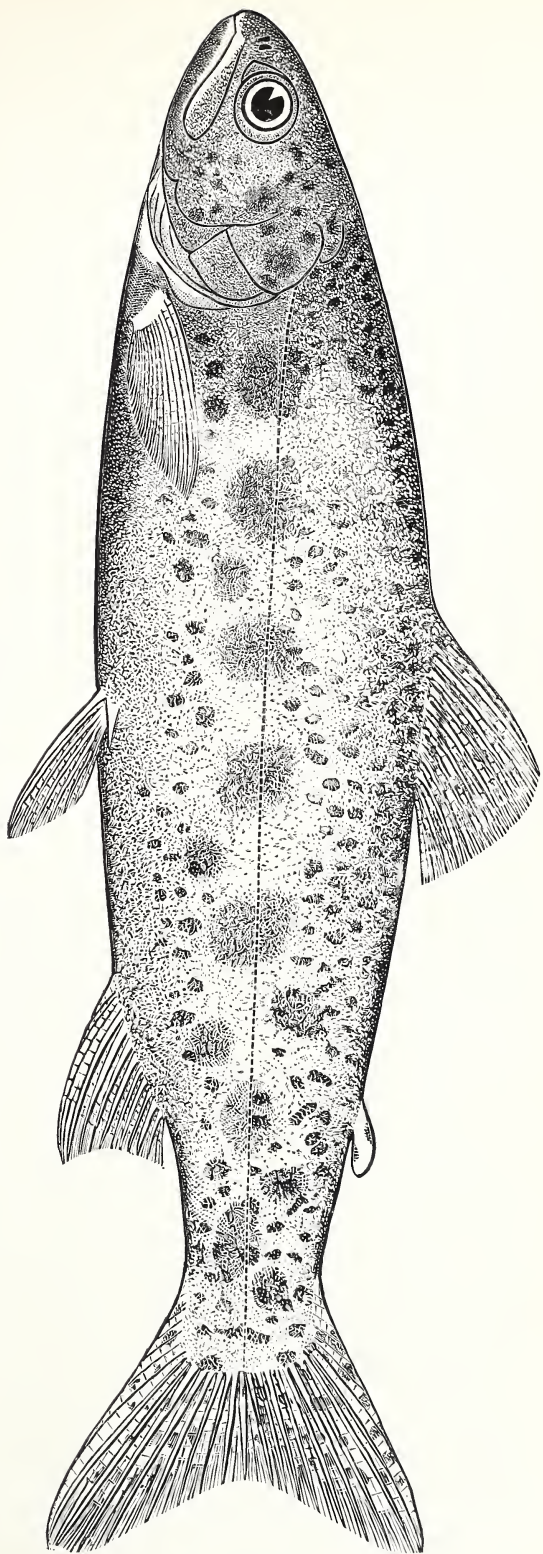
The food and game qualities of this species are scarcely secondary to those of our native brook trout. Its adaptability to capture with artificial flies and its gameness are well known.

The Loch Leven trout (*S. levenensis*) is also receiving some attention from the commission, chiefly with a view to its utilization in stocking ponds. As its name indicates, it is essentially a pond trout, but it is a closely related species to the brown trout. It has the characteristics of the latter, the chief difference being that it has become specially adapted to ponds.

An attempt was made to secure some calico bass (*Pomoxis sparoides*) in the spring for stocking purposes, but it was not found practicable to obtain them, owing to the fact that the parties who could have supplied them last year were not in a position to furnish them last spring.

Stocking Ponds.—Twenty great ponds of the State have been stocked and the fisheries therein regulated, under chapter 208, Acts of 1897. This is a record in this particular line of the commission's fish-cultural work, the ponds thus stocked under the act referred to being more than were ever stocked

* Appendix to report of the Pennsylvania Fish Commission, 1889-90-91, page 79.



RAINBOW TROUT. — *Salmo irideus*.

in any previous year. Beside this, several other ponds were stocked by request, and some that had been stocked and closed the previous year were restocked, as will appear in the detailed statement.

The ponds stocked under the act mentioned were as follows: Assawompsett Pond, Lakeville; Great Pond, North Andover; Long Pond and Round Pond, Tewksbury; Pleasant Pond, Wenham; Round Pond and Forest Lake, Palmer; Packard Pond, Orange; Horn Pond, Woburn; Quincy Reservoir, Braintree;* Watuppa Lake, Fall River; Solomon's Pond, Northborough; Chadwick's Pond, Haverhill; Fowler's Pond, Boxford; Fort Pond, Littleton; Foster's Pond, Andover; Middle Pond, North Dana; Island Pond, Plymouth; Lily Pond, Cohasset; Monponsett Pond, Halifax; and Lake Chaubunagungamaug, Webster.†

With the exception of Quincy Reservoir, which, by special request, was closed to fishing for three years, Chadwick's Pond, Haverhill, and Fowler's Pond, Boxford, which were closed to Sunday fishing, uniform regulations were applied to all the above-mentioned ponds and lakes. These regulations prohibit for three years from date of issuance "all fishing from the first day of November to the first day of June of each year for a term of three years." Fishing is permitted, however, "with single hook and hand line on Monday, Wednesday and Saturday of each week, from the first day of June to the first day of November of each year," while the regulations are in force. A penalty of twenty dollars for violation of the regulations is fixed by the commission.

The following ponds, which were stocked with white perch in 1900, and the fishing therein regulated under chapter 208, Acts of 1897, were also stocked with pike perch fry in 1901, an allotment of 200,000 fry being put into each: White or Southwest Pond, Athol; Lower Bridgman Pond, Belchertown; Quabbin Lake, Greenwich.

Upper Bridgman Pond, Belchertown, and Wequaguet Lake,

* Each of the ten ponds first mentioned, with the exception of Round Pond, Tewksbury, and Forest Lake, Palmer, was stocked with 200,000 pike perch fry. In addition, Quincy Reservoir was stocked with rainbow trout fingerlings.

† Fourteen of the ponds enumerated were stocked with rainbow trout fingerlings. One of these was also stocked with pike perch, and several others were stocked with landlocked salmon fingerlings in addition to the rainbow trout.

Barnstable, both of which were stocked and regulated in 1900, were stocked with rainbow trout fingerlings in 1901.

Lake Quinsigamond, Worcester, in which fishing is regulated for five years by a special law (chapter 158, Acts of 1901), has been stocked with brook trout and landlocked salmon.

In addition to all these, Cape Pond, Gloucester, and Forge Pond, Granby, have each been stocked with 200,000 pike perch fry, by request, but no restrictions have been applied to them.

Restocking Ponds.—Although the decision of the Attorney-General was published in our last report, and this clearly and fully sets forth the fact that the commission, having once stocked a pond and regulated the fishing therein in accordance with chapter 208, Acts of 1897, has no authority thereafter to renew such regulations, appeals have been received this year urging that certain ponds be restocked and the fishing regulations relating thereto be renewed. Inquiries as to the commission's authority to take further action, after the expiration of the period during which fishing has been regulated in a pond, have been received, and these invariably evince much concern as to the result of unlimited fishing in a pond wherein the supply of fish has been improved by limiting fishing. All this indicates a strong popular desire for a law which will in some way limit fishing in ponds. It is recognized by all who have studied the question that nothing less than almost utter depletion can be expected in ponds where ice fishing is permitted. When one individual can use a multiplicity of lines and hooks for the capture of pond fish, whether it be in winter or summer, it is not difficult to predict the result. It is quite impossible with any means now at command to keep up the supply of fish in such small areas of water, if unrestricted fishing is permitted; consequently, waters which might annually yield large quantities of fish, if the supply is reasonably conserved, become more or less barren, especially so far as the most desirable species of fish are concerned.

It is the present policy of the commission to add to the resources of closed ponds by stocking them each year, if possible, while they are closed, but this can effect no permanent good, if no limit can subsequently be put on fishing, for if such efforts result in filling ponds with fish, and that fact is known, as it is

sure to be, the rush to catch as many as possible at the termination of the closed period will soon result in depletion, and thus the best intentions of the State will be defeated.

The effect of the prohibition of unrestricted fishing through the ice is well demonstrated in the following extract from a report made on June 26, 1901, by Deputy Otis Foster of Pembroke, who says: "There has been as many fish taken out of the three ponds this month as there was the whole season last year. That shows that not fishing through the ice has made the difference."

Stocking and Closing Brooks. — Two brooks have been stocked with yearling brook trout, and the fishing therein has been regulated, under chapter 284, Acts of 1900. These are as follows: Argelia, or Brown's Brook, in the town of Groveland, and Flat Brook in the town of Ware.

The first of these brooks is closed to "all fishing for three years from June 5, 1901, with the following exception;" fishing is permitted "with single hook and hand line on Tuesday, Thursday and Saturday of each week, between the first day of April and the first day of September in the year ending June 5, 1904."

Flat Brook is closed "to all fishing for three years from June 12, 1901."

Examination of Ponds. — The importance of obtaining a few leading facts concerning the great ponds of the State will be apparent to all. Without such data it is impracticable to act intelligently in regard to stocking our inland waters. As is well known, fish, being cold-blooded animals, are dependent for comfort and even existence upon the temperature of the water in which they are placed. Certain species require a low and nearly uniform temperature, and it would be a manifest error to put such into a pond having only comparatively warm water, in which it would be impossible for the fish to thrive or even to live. It is, therefore, evident that the best-intentioned efforts may be defeated, and public money may be expended to no purpose, if there is not in the possession of the commission knowledge of conditions which will make possible approximately correct conclusions regarding the proper action to take in stocking a pond. It is one thing to stock a pond without any basis for estimating the result, which is for lack of

knowledge fully as liable to prove a failure as anything else ; and it is quite another matter to stock it with full information of its leading characteristics, and thus have reasonable assurance of success. It is unquestionably important to do whatever seems feasible to insure the increase of fish in our inland waters, and nothing, perhaps, can more surely lead to this than a knowledge of the conditions in our ponds and lakes which may influence the stocking of them.

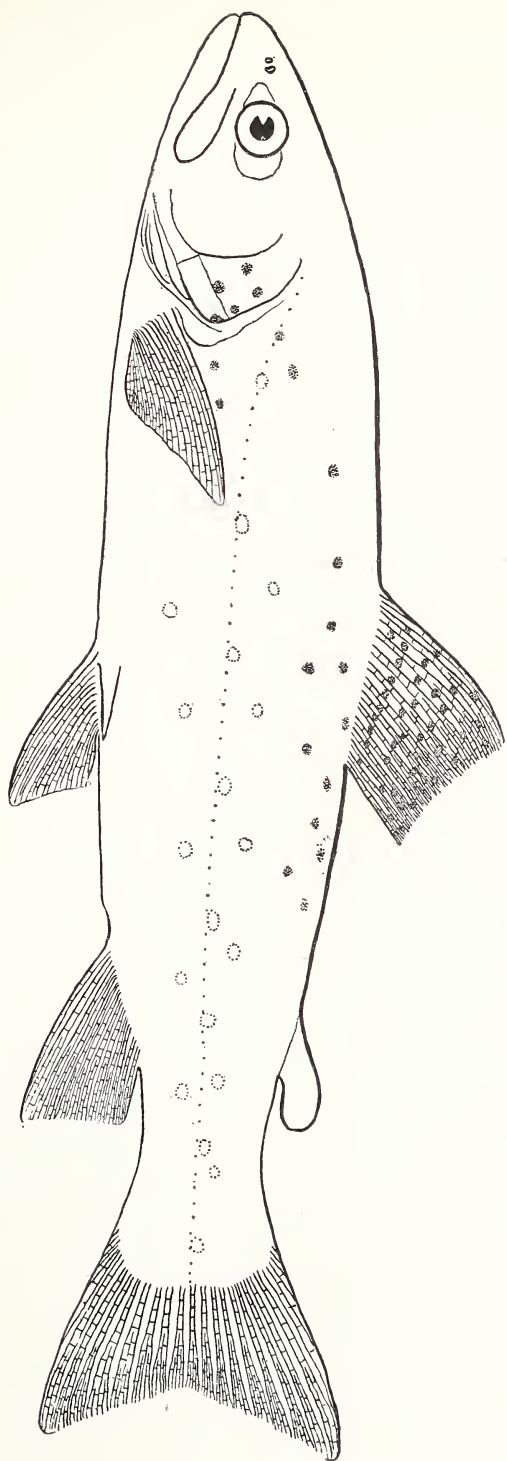
With this end in view, every opportunity has been improved by the chairman to continue the examination of ponds, and thus to supplement the work in this direction which was begun last year.

Nineteen ponds were examined as to temperature, depths, bottom, etc., and seven other ponds were visited ; but it was not practicable to make a complete examination of the latter, because boats were not available. In a majority of these cases, however, sufficient knowledge was obtained to serve the purpose of the commission, so far as stocking the ponds is concerned ; for most if not all of those visited and not fully examined are shallow, with water of relatively high temperature. Following are brief statements of the most notable conditions in the ponds visited or examined :—

Triangle Pond, Sandwich : The most noticeable species of fish in this pond are white and yellow perch, black bass and pickerel. There are also some sunfish or roach, and minnows, locally called “transparent” minnows. The bottom is composed chiefly of sand, gravel and pebbles, but has muddy areas, generally of small extent. The greatest depth found was 31 feet. The temperatures on June 14 were as follows : surface, 70° F. ; at a depth of 23 feet, 68° ; and at a depth of 27 and 31 feet, 66°.

Great Herring Pond, Plymouth : This pond is noted for an abundance of yellow and white perch and alewives. It also has pickerel, black bass, suckers, hornpouts or catfish, eels, roach or sunfish and shiners. On June 17 alewives were seen in large numbers around or near the shores of the pond, apparently in the act of spawning. The bottom of this pond is more or less varied, being composed of sand, gravel, pebbles and mud, with patches of moss or grass, particularly in shallow sections. On June 17 the surface temperature was

BROWN TROUT.—*Salmo fario*.



68° F., and was 65° F. at depths ranging from 28 to 35 feet. Alewives were reported to be exceptionally abundant during the present year, and it was stated by local residents that fully three thousand barrels of this species had been taken by fishermen during the migratory period. The season was notable from the fact that there appeared to be an unusual number of dead alewives in the pond, so much so that the authorities had to take measures to remove the fish from the shores, where they caused more or less stench. As many as fifteen barrels were removed on one occasion a few days before the pond was visited.

Island Pond, near Herring Pond, Plymouth: Inasmuch as it was not practicable last year to examine this pond in a satisfactory manner, a second visit was made to it on June 18 of the present year. The principal species of fish which occur in this pond are small-mouth black bass, pickerel, yellow perch, and hornpout or catfish. The latter are reputed to be abundant. It also has some shiners. The bottom is more or less diversified, and consists principally of patches of sand, gravel, pebbles and stones. It has a growth of grass pretty generally distributed over the pond, and for this reason the fishermen call it a "mossy bottom." There are a few lily pads in the shallower parts of the pond, but generally these are not abundant. The surface temperature on June 18 was 71° F., 69° in from 22 to 24 feet. As a rule, the bottom declines quickly from the shore to a depth of 12 to 16 feet, except in the coves, where it falls off more gradually.

Elbow Pond, Plymouth: The principal species of fish in this pond are black bass, yellow perch, pickerel, and catfish or hornpout. The bottom is composed chiefly of sand, gravel, pebbles and stones, but is for the most part covered with grass, and is therefore considered "mossy bottom." In some places the bottom slopes off very gradually from the shore, in others it falls off quickly into comparatively deep water. This pond is shallow and has much less water than Island Pond, the extreme depth obtained being only 16 feet. The surface temperature was 71° F., and the temperature at a depth of 15 feet was 69°.

Big Sandy Pond, Plymouth: This pond has apparently a greater abundance of fish than other waters in the immediate

vicinity, due somewhat to its having been rather heavily stocked both by the United States Fish Commission and the State Commission. The principal species are black bass, pickerel, white and yellow perch, catfish or hornpout, dace, and sunfish or roach. Capt. Z. B. Godfrey, who has a camp here, is authority for the statement that in 1885 and 1886 the pond was stocked with landlocked salmon, and that it was also stocked with eight thousand lake trout fry in 1895. So far as he knows, however, neither of these species have been taken. The pond was also stocked with black bass in 1895 and again in 1899, according to Captain Godfrey. The bottom is composed chiefly of sand, gravel, pebbles and small stones, but has patches of soft mud. Throughout a large part of its extent it has a growth of grass. The temperatures on June 18 were as follows: surface, 69° F.; at a depth of 18 feet, 67°; while the temperature was 64° at depths ranging from 27 to 37 feet. Sandy Pond falls off rather steeply on its north-west side, so that it quickly reaches a depth of from 18 to 25 feet, a depth which prevails over a large area on that side of the pond, while a little way out from the shore the depth ranges from 30 to 37 feet. On the south-east side of the pond, however, the water is comparatively shallow.

White's Pond, Plymouth: This pond has the ordinary species of fish caught in the vicinity, and in addition is reputed to have a considerable supply of carp. The bottom is mossy, and has proportionately larger areas of mud than is found in Great Sandy Pond. This pond is shallow throughout its extent, the extreme depth found not exceeding 16 feet, and for the most part being not over 5 to 10 feet. It has considerable of vegetable growth, including lily pads. The surface temperature was 71° F., while the temperature at 16 feet was 68°.

Foster's Pond, Andover: This pond was examined on July 10. The principal species of fish are pickerel, which are said to grow to a large size here, yellow perch and catfish. The bottom of the pond was so thickly covered with aquatic grass that its exact character could not be determined, though it is probable that for the most part it is muddy. The maximum depth obtained was 10 feet, but it is possible there may be small areas where the pond is a foot or two deeper. It has

quantities of lily pads near the shore and in the arm that reaches toward the dam, but generally it is free from these over the greater part of its area. Surface temperature was 74° F., and 71° at a depth of 10 feet.

Martin's Pond, North Reading: This pond was visited on July 10, and such examination of it as was practicable was made. The pond is shallow, having a depth ranging from 2 to 6 feet over the greater part of its area; the maximum depth found was 7 feet. With the exception of a small patch of clear water in the centre of the pond, which probably did not exceed an acre in extent, if it was so large, the entire surface was thickly covered with lily pads to such a degree that it was difficult to row a boat through them. So far as could be determined, the bottom is soft mud over the larger part of the pond, but around the edges there are patches of gravel and pebbles. Small pickerel are said to be abundant, but large pickerel are seldom or never taken. There are also yellow perch and a few catfish or "pout." Surface temperature was 76° F., and the temperature at a depth of 7 feet was 72°.

Watuppa Lake, Fall River: This lake was examined on August 8. The lake is one of the largest, if not the greatest in area, of any body of fresh water in the Commonwealth. It is divided into two sections by a dike, over which the roadway runs, and these sections are known respectively as South Pond and North Pond,—sometimes also called Lower Pond and Upper Pond. The character of the bottom is varied. In places it is soft mud, with patches of mossy or grassy bottom, while in other sections the bottom is stony or gravelly. The maximum depth is said to be 36 feet, and the statement is made that at the bottom in some sections of the pond, where there are springs, the temperature is comparatively low. The surface temperature was found to be 74° F., and at a depth of 19 to 20 feet the temperature was 72°. The principal species of fish are black bass, pickerel, white and yellow perch, and catfish or hornpout.

Long Pond, Wellfleet: This pond was examined on August 15. The principal species of fish found there are white and yellow perch and black bass. The bottom of the pond is sandy. The maximum depth obtained was 53 feet. It is possible that

there may be small areas in which the depth is slightly greater. The surface temperature was found to be 77° F., 72° at a depth of 30 feet, and 70° at a depth of 53 feet.

Gull Pond, Wellfleet: This pond was examined on August 15. It is a fine sheet of water, nearly as broad as long, and having a greater depth than any pond in the Commonwealth examined up to this time. The maximum depth obtained was 58 feet, and over a large area the depth exceeded 40 feet. The principal species of fish are pickerel, white and yellow perch and alewives. The latter come into the pond in large numbers in the spring to spawn. It has a sandy and gravelly bottom, with some lily pads near the shore. The surface temperature was found to be 73° F., 62° at a depth of 50 feet, and 61° at a depth of 58 feet.

Lake Chaubunagungamaug, Webster: This lake was examined August 23. It is very irregular in outline, with several small islands, and points jutting into the lake, and so arranged as to divide it into nearly three equal parts, connected by narrow channels. The principal species of fish are black bass, white and yellow perch, pickerel, catfish or pout and sunfish or roach. Black bass and yellow perch are reputed to be abundant, and pickerel, catfish and roach are reasonably numerous. Some fifteen hundred white perch were put in the lake about two years ago, but some doubt exists regarding any of them being there now; there is a diversity of statement concerning this. The lake has also been stocked with lake trout, but no adult fish of this species have been seen. The depth varies considerably; large areas range from 20 to 30 feet, while other sections are shallow, not exceeding 12 or 15 feet, and with comparatively high temperature. The maximum depth, 42 feet, and lowest temperature are found in that section of the lake commonly called "North Pond." The bottom is much diversified, but is generally hard, being composed of stones and gravel, though there are patches of mud and sand, and more or less greater areas are covered with aquatic grass. The surface temperature ranges from 76° to 78° F., 78° in a depth of 15 feet in one locality, 65° in 27 feet, 64° in 28½ feet, and 60° at a depth of 42 feet, in the North Pond; 70° in one place, at a depth of 31 feet, in the "Middle Pond," and 69° at a depth of 23 feet in the "South Pond." Temperatures were

taken in numerous positions and at various depths in the Middle and South Pond, ranging from 69° minimum to 76° or 78° at the maximum or surface temperature. There appears to be quite a wide range of temperature at the same depth between the North Pond, so called, and the other two sections of the lake, indicating the probable presence of springs at the bottom of the northern section, with water of comparatively low temperature. The fact that the well which supplies the town of Webster with water at a temperature which, I am told, never exceeds 54°, would indicate the possibility of this, inasmuch as this well is close to the shore of the upper section of the lake.

Lake Buel, Great Barrington: This lake was examined about the middle of September. It is a fine pond, with a good depth of water in the northern section, but shallower toward its southern end. The principal species of fish are black bass, pickerel, yellow perch, bull-heads or catfish, suckers, and sun-fish or roach. Occasionally a brook trout is caught through the ice in winter. The maximum depth obtained was 44 feet. At the northern part of the pond in several places the bottom falls off rather steeply to 25 or 30 feet. It is claimed that this lake is fed by springs, which accounts for the low temperature at greater depths. The surface temperature was found to be 68° F.; the temperature at a depth of 30 feet was 54°, and it was 52° in depths ranging from 42 to 54 feet. The bottom is chiefly gravel, sand and pebbles; but there are muddy spots, particularly in the southern section.

Forest Lake, Palmer: This pond was examined September 27. It is a fine large pond, with varying depths and temperatures, the latter changing considerably with depth. The principal species of fish are pickerel, yellow perch, catfish, chubs, suckers and shiners. It is said that there are very few suckers, and that now pickerel are scarce and small. The bottom is composed of gravel, stones and mud, with large areas of eel grass. The maximum depth is reported to be 64 feet, but in the examination made the greatest depth obtained was 28 feet. The surface temperature was 68° F., and the bottom temperature at varying depths was as follows: 62° at 17 feet, 55° at 27 feet and 54° at 28 feet. This pond is fed by springs, hence the low temperatures at the bottom.

Brown's Pond,* Palmer: This pond was examined on September 27. It is comparatively of small size and rather shallow, with lily pads near the shore. The principal species of fish are pickerel, catfish and yellow perch. The bottom for the most part is sandy and grassy. There is no inlet, the pond being fed by springs. The maximum depth obtained was 9 feet, but the depth generally ranges from 5 to 8 feet, except near the shore, where it is less. The surface temperature is 63° F.; the bottom temperature was 62° at 7 feet and 61° at 9 feet.

Bartlett's Pond, Northborough: This pond was examined on October 2. It is shallow throughout its extent, and over the greater part of its area it does not exceed 4 to 6 feet in depth. The maximum depth obtained was 8½ feet. Lily pads are numerous. The principal species of fish are the large-mouth black bass, pickerel, yellow perch, catfish, sunfish or roach, and shiners. It is said that, generally speaking, the fish are small in this pond; but some black bass that we saw were of good size, and would weigh from 1½ to 3 pounds each. The bottom is apparently soft mud all over the pond, with a profusion of aquatic grass or eel grass. The surface temperature was found to be 68° F., and the bottom temperature was 66° in depths varying from 6 to 8½ feet.

Solomon Pond, Northborough: This pond was examined on October 2. It is reputed to have a shallow ridge something like a bar extending across it, but generally speaking has a good depth throughout. In some places the bottom falls off steeply from the shore to a depth of 20 or 30 feet. The principal species of fish are pickerel, black bass, yellow perch, and catfish or pout. The bottom in the deepest sections of the pond is chiefly soft mud, but nearer shore there are spots of sand and pebbles. The surface temperature was found to be 69° F., while the temperatures at various depths ranged as follows: 64° in 24 feet, 54° in 30 feet and 52° in 31 feet, which was the maximum depth obtained.

Chauncey Lake, Westborough: This is a fine pond with

* A petition was presented to have this pond stocked and the fishing therein regulated, in accordance with chapter 208, Acts of 1897. Subsequent to the examination, however, it was ascertained that the pond was less than 20 acres, and therefore private property, not available for State action.

beautiful surroundings; it has a large area of nearly uniform depth, varying from 19 to 20 feet. The principal species of fish are black bass, pickerel, catfish and yellow perch. It is said that both large-mouthed and small-mouthed black bass are taken here. It is also stated that five thousand young land-locked salmon were put into the lake in 1900, but there is little probability that they will thrive in water with a temperature as high as this pond has. The bottom is varied. Near the shore there are large patches of gravel, stones and pebbles, but in the deeper part of the pond the bottom appears to be largely soft mud. The surface temperature was 67° F., and the bottom temperature was found to be as follows: 64° to 66° at 19 and 20 feet in depth.

Fort Pond, Littleton: This pond was visited on October 16. The principal species of fish are pickerel, yellow perch, pout or catfish, roach or sunfish, and shiners. With the exception of yellow perch, fish are generally scarce, though the pickerel that are taken are reputed to be of good size and condition. The scarcity of the fish is attributed to depletion caused by winter fishing through the ice. In some parts of the pond the bottom is composed of sand, gravel, pebbles and stones; but over a large area in the deeper parts the bottom is soft mud. The surface temperature is 62° F., and the bottom temperature at various depths was as follows: 60° at 22 feet, 59° at 25 feet, 55° at 32 feet and 54° at 33 feet. It is claimed that the maximum depth of the pond is 40 feet, but no depth was obtained in the examination made greater than 33 feet.

Little Herring Pond, Plymouth: The same species of fish found in Great Herring Pond occur in Little Herring Pond; but in the latter the conditions are specially favorable to pickerel, which are consequently much more abundant than they are in the larger pond. In walking along the side of Little Herring Pond the chairman of the commission saw several pickerel near the shore and large numbers of tadpoles, while not a few specimens of the large bullfrog were observed. The bottom in Little Herring Pond is similar to that in Great Herring Pond, though possibly there are proportionately larger areas of mud. The water is shallow, and lily pads are abundant near the shore. The surface temperature was 69° F.

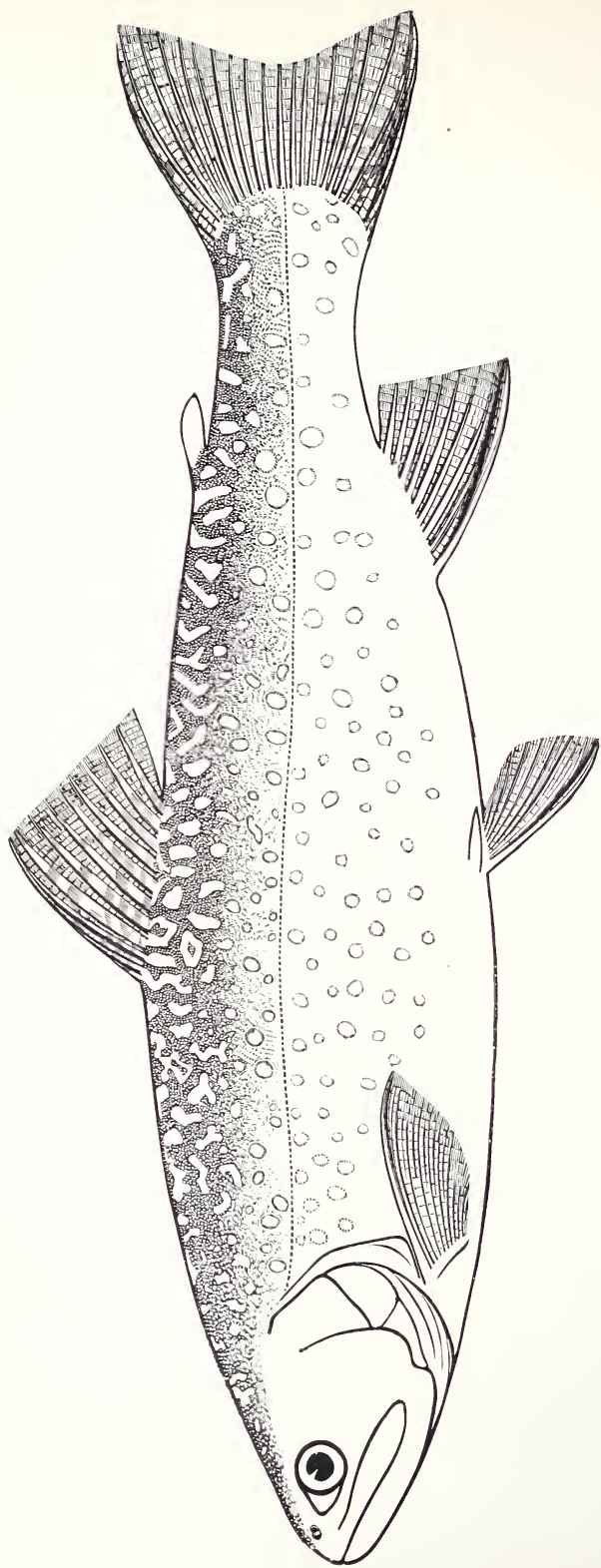
Ezekiel's Pond, Plymouth: This pond was visited on June 18, but, owing to lack of a boat, could not be satisfactorily examined. The principal species of fish are black bass, pickerel and yellow perch, and it has the reputation of producing large bass. According to Captain Godfrey, it was stocked with landlocked salmon in 1896, but none have ever been taken, so far as can be learned. The bottom is sand, gravel and pebbles, and the extreme depth is said to be about 20 feet. The surface temperature was found to be 71° F.

Big Rocky Pond, Plymouth: This pond was visited on June 18, but, owing to lack of a boat, could not be thoroughly examined. According to those familiar with it, it has quantities of small black bass, but bass do not grow large in the pond. The bottom is composed of sand, gravel and pebbles, with occasional large stones or boulders. Both Big Rocky Pond and Little Rocky Pond, the latter being in the near vicinity of the former, are noted for boulders or ledges of considerable size, and because of this fact, which is somewhat rare in this vicinity, they have received their names. At the point visited on Big Rocky Pond the beach fell off very gradually, and the surface temperature in the shallow water over white sand was 73° F., which is doubtless more than it would have been in deeper parts of the pond.

Little Sandy Pond, Plymouth: This pond was visited on June 18, but could not be examined, owing to lack of a boat. It is rather shallow, and is reputed to be a fine pickerel pond. It has sandy shores, and the bottom is probably similar to that of the other ponds in the near vicinity.

Long Duck Pond, Plymouth: This pond was not visited, but is reputed to be shallow with "mossy bottom," and with very few fish in it.

Round Pond, Palmer: This pond, which was stocked in the spring of 1901 with pike perch, was visited on September 27, but the depths and temperatures could not be ascertained, owing to the fact that no boat was available for this purpose. The pond is reputed to have a maximum depth of 25 to 30 feet, and a comparatively low temperature at the bottom, due to the fact that it is fed entirely by springs. The bottom, so far as can be judged by the shore, is composed chiefly of gravel and pebbles.



BROOK TROUT, — *Salvelinus fontinalis*.

Little Chauncey Pond, Northborough: This pond, which was seen but not examined on October 2, is approximately the same size and character as Bartlett's Pond, it being shallow, and presumably the water is of the same temperature, as the two ponds are connected by a brook.

Work of the United States Fish Commission. — The fish-cultural work prosecuted by the United States Fish Commission, at Wood's Hole and Gloucester, during the period covered by this report, has assumed large proportions, and is second only to what was accomplished last year. There has been a marked falling off in the production of lobster fry, due to the difficulty experienced in the obtainment of egg-bearing lobsters in the waters of this State, but the number of fry planted off our coast slightly exceeds the total of last year, for the reason that 12,970,000 fry, that were hatched from eggs obtained in other States, were liberated from Cape Ann to Cohasset. Thus the total output of fry of this species in Massachusetts waters has been 37,210,000, against 37,181,000 fry planted off our shores last year.*

A total of 202,871,000 cod fry and 44,230,000 flatfish fry have been deposited in the coast waters of Massachusetts during the year.

The total output in our coast waters for the current year, of lobsters, cod and flatfish, was 284,311,000 fry.

The following statement, furnished by the United States Fish Commission, shows in detail the quantities of fish produced at the two stations, and the allotments for distribution at various points along our coast line: —

* A more detailed statement relating to the artificial propagation of lobsters, etc., will be found under the head of "Lobster culture and lobster fishing."

Statement of Fish deposited in Massachusetts Coast Waters by the United States Commission of Fish and Fisheries during the Season of 1901, not including the Lobster.

SPECIES AND DISPOSITION.	Number of Fry.
<i>Cod.</i>	
Vineyard Sound:—	
At its mouth,	1,406,000
Off Robinson's Hole,	4,869,000
Off Tarpaulin Cove,	36,106,000
Off Job's Neck,	27,693,000
Off Gayhead,	15,370,000
Off Waquoit,	4,020,000
Off Lackey's Bay,	7,155,000
Off Can Buoy,	3,271,000
Atlantic Ocean:—	
Gloucester,	96,541,000
Beverly,	3,925,000
Eel Pond, Wood's Hole,	1,558,000
Green Pond, Falmouth,	957,000
Total,	202,871,000
<i>Flatfish.</i>	
Wood's Hole Harbor:—	
Off Wood's Hole,	32,495,000
Off Grassy Island,	1,527,000
Off Lackey's Bay,	585,000
Green Pond, East Falmouth,	3,313,000
Great Pond, East Falmouth,	1,523,000
Vineyard Sound, Lambert's Cove,	1,681,000
Hadley harbor, Naushon Island,	2,668,000
Acushnet harbor, New Bedford,	438,000
Total,	44,230,000

The magnitude and importance of this work must be apparent to all who have given the matter any consideration, and who are thus able to estimate its true value as a factor in contributing to the maintenance in our coast waters of species which support large commercial fisheries. With the rapid development of our country and the acquirement of insular possessions with fish-eating populations, whatever tends to keep up the supply of food fish, and thereby to promote our fishing industry, cannot be lightly esteemed by the citizens of this State.

Reference will be made elsewhere to the eggs of fresh-water

species contributed by the United States Fish Commission to this State for stocking inland waters.

Fishways. — Much effort has been put forth in the examination of fishways built, rebuilt or repaired, under orders issued last year, and also in examining dams or other sites for new fishways. In many instances the chairman and superintendent of hatcheries have visited fishways or sites together, and in other cases the examination has been made by one of them. Among the completed fishways inspected were the following: —

The new fishway at Middleborough, which, it will be remembered, was extended twenty feet last year. We observed alewives passing through it to the pond above in considerable numbers, and concluded it was furnishing a satisfactory passageway for these fish, notwithstanding contrary statements received by the commission.

The fishway at East Taunton, which was rebuilt last year, is in good condition.

The fishway at the outlet of Mill Pond, in Yarmouth. Mill Pond has been appropriated by the State for the obtainment of a supply of white perch with which to stock other ponds. Some alterations were needed in this fishway. These were made, so that fish can pass through at different stages of water. This is necessary, since the water above the fishway may be raised materially when the cranberry bogs are flowed.

The several small fishways at and near Santuit Pond.

Two small fishways in the outlet of Mashpee Pond, built early in the present year. They were most effective. Alewives were running through them in such numbers that children were catching the fish in their hands.

Orders for building fishways have been issued to the following parties this year, and in each case a personal examination of the site was made by one or more of the commissioners.*

The Acushnet Sawmill Company, Acushnet. The stream which furnishes the power to operate the mill of this company, and which has been dammed for that purpose, is one that has been frequented from time immemorial by alewives in spring, when they are seeking their natural spawning grounds. It

* This enumeration does not include the two fishways built in Mashpee, to which reference has already been made. Plans for building these were made by the commission, on request, but no order for their construction was issued.

was found possible to construct what may be termed a natural passageway for fish, with comparatively small outlay; and the company very readily agreed to prepare it, and have it in an efficient condition before the spring migrations begin next year.

Mr. James B. Hamblin, whose mill is situated on the same stream, a short distance above the mill of the Acushnet Saw-mill Company.

Mr. O. H. Howland of Sandwich, who controls the sluiceway at the outlet of Little Herring Pond. This sluiceway is for the purpose of raising the water over the cranberry bogs between Great and Little Herring ponds, and therefore serves to prevent the free passage of migratory fish into the smaller pond, because the bogs are often, if not generally, flowed during the migratory period.

No occasion has been found for building any fishways by the State, under chapter 344, Acts of 1900, consequently the money appropriated for that purpose has not been drawn upon.

Prevention of Stream Pollution. — The effort to enforce the law (chapter 129, Acts of 1890) for the prevention of stream pollution, which results from the unrestricted discharge of sawdust into trout streams, has been continued. In pursuance of this work, many mills and streams have been personally visited by the chairman. Among these were a number of mills the owners of which had been notified last year, but, as a result of a hearing held by the commission, the enforcement of the orders was temporarily suspended until it was practicable for the chairman to visit the mills. The examination made indicated the desirability of prohibiting the discharge of sawdust from these particular mills, with one exception, and new orders were issued accordingly. One mill in the vicinity which had previously not received any attention was also examined, but its location and environment did not warrant any action, since the little stream it was located on was not a trout brook, and emptied into a pond about a quarter of a mile or less from the mill.

Orders have been issued this year to twenty-four mill owners, as will be seen by the list that follows, and similar orders were issued last year to fifteen owners. Inasmuch as some individuals or firms own more than one mill, the mills thus affected

somewhat exceed in number the orders issued. Thus, in the period covered by this report the orders sent out applied to twenty-six mills at least, and forty-one mills have been stopped from discharging sawdust into streams in 1900 and 1901.

Orders were issued to the following owners of sawmills in 1900: L. J. Hall, Charlemont;* Reed & Temple, East Princeton; Edward Pawrant, Hoosac Tunnel P. O.; G. H. Mann, Zoar; Stafford, Whitcomb & Co., and W. L. Allen, Monroe; William Henry, Clarksburg; William Putnam, Millington; Eugene Bullard, North New Salem; Irving T. Hale, Hubbardston; Diamond Match Company, Athol; Joseph Williams, Warwick; Edwin Wallace, Southbridge; Trining & Wilcox, New Boston; and Henry Bassett, Charlemont.

Orders prohibiting the discharge of sawdust were sent to the following mill owners during 1901: Andrew Bartlett, Dwight; Goddard & Williams, North Orange; C. H. Gale, Orange; Leonard Moulton, Petersham; Marshall Stedman, Tyringham; George Thomas, West Becket; Harry Crossman and Rufus H. Fitts, Cushman; A. P. Bates, E. S. Snow, Sanford & Stebbins, and Pratt Brothers, Belchertown; Harry B. Bond, South Belchertown; Albert J. Baker, Shutesbury; E. W. Cady, Dalton; D. A. Cady, Windsor; George A. Stevens† and F. Brochu, New Marlborough; S. S. Richardson, Charles Billings, Rice E. Soaper, Wesley Watson, C. N. Watson and Emmons Dudley, Montague and Leverett; and S. W. Bowen,‡ Wendell.

Naturally there is more or less objection to the enforcement of this sawdust law, and it may not be wondered at that mill owners, who at best find their business not any too remunerative, cannot see that the maintenance or increase of trout in a brook is of sufficient consequence to warrant any action on the part of the State which may interfere with privileges that have been long enjoyed, and thus to cause them some trouble and expense. As a rule, the claim is made that there are no trout

* It was learned that Mr. Hall had a blower, but the sawdust was gathered in a heap on the bank of the stream, and often fell into the brook.

† Mr. Stevens had two mills, one at Hartsville P. O., and a steam mill higher up on the same brook, which discharged sawdust into the stream upon which they were located.

‡ The last seven persons named are the owners of mills concerning which orders were suspended last year.

in the brooks, or at least not sufficient to justify any limitation or prohibition of the discharge of sawdust; and occasionally the argument is advanced that the emptying of large quantities of sawdust into streams is most beneficial to trout, which thrive and grow more abundant because of it. It is scarcely necessary to seriously consider the last-mentioned claim. As to the other assertion, a single instance may properly be cited.

Last year the statement was made that a certain brook in the northern central part of the State,* upon the bank of which a sawmill was located, was of little or no practical value as a trout stream. From observations made by the writer a different conclusion was reached, and orders were sent to the mill owner to take such means as were necessary to keep his sawdust out of the brook. It is believed that the order was faithfully observed. Early in last July two well-known anglers from a neighboring town caught in a short time one day thirty-three brook trout, which ranged in size from nine inches to a weight of one and one-half pounds. Both of these men had fished the streams of Maine and New Hampshire, and one of them, who recited the above facts to the writer, declared neither of them had previously taken such fine strings of brook trout. It is quite within the possibilities that it would not have been practicable to secure such results the year previous, not far below the mill, and it is equally possible that considerable improvement to fish life may have resulted even in one year from keeping the stream free from pollution.

FISHERIES.

Importance of Commercial Fisheries.—In our last report statistics were presented showing the importance of the sea and shore fisheries of Massachusetts, and the position held by this State in comparison with other New England States. It is somewhat remarkable, perhaps, that, despite the reverses which have come to the North Atlantic fisheries in the past half-century, Massachusetts not only has invested at this time two-thirds of the capital that New England has employed in these

* The name of this brook is withheld from publication for the present, because there is no doubt it would be very much overfished, and its chances of being restored to a first-class trout brook might be injured, if not destroyed, if its name and location were given in connection with other statements of fact made here.

industries, but she still ranks as the premier fishing State of the Union, so far as her invested interests and the value of products are concerned. Nor should it be forgotten that she sends forth from her harbors by far the largest fleet of deep-sea fishing vessels that exists in the United States; that these vessels are unrivalled elsewhere in the fisheries of the western world; that they explore all oceans, from the frozen regions of the Arctic and Antarctic to the tropics, to gather the harvest of the seas; and that this fleet is a school for the training of seamen that will grow increasingly important as our national aspirations for sea power and maritime commerce develop.

In view of all this, there is reason for satisfaction in the general prosperity that has been experienced, even if the result in some branches has not been so good as was hoped for. A ready demand for products and good prices have ruled, and, generally speaking, the financial returns have been far above the average. The inauguration of new and improved methods, and a wider adoption of some already tried, indicate a progressive spirit which promises to add materially to the prosperity and consequence of our ocean fisheries.

It is gratifying to record that suggestions made by this commission for improvements along certain lines have been readily adopted. The importance of this action can scarcely be properly estimated at this time, but there can be no question that it will prove of great benefit to the fisheries, and will help to keep this State in the van, so far as these industries are concerned.

Statistics. — For the first time in the history of this commission is it practicable to publish figures, relating to certain of the shore fisheries, which have any statistical value. This is due to the law passed at the last session of the General Court, which makes it possible to show the number of individuals employed, the number and value of boats and each kind of apparatus, and, what is of still greater consequence, the quantities and values of products. Heretofore, as will be remembered, the law called for the numbers of fish only, and, inasmuch as there is always liable to be a wide variation in their size and weight, especially of certain species, it was impossible to do more than to guess wildly at the quantity (in pounds) taken from year to year; thus the figures obtained heretofore were

practically valueless, so far as affording any basis for intelligent conclusions regarding the importance or value of the fisheries to which the statistics applied.

Some trouble has been experienced in making certain of the fishermen understand how to submit their returns in accordance with the new law. This was anticipated, however, and it may reasonably be expected that, when once they have learned the new method, which is surely simple enough, and when it is understood that all fishermen operating certain forms of apparatus, which the law enumerates, must comply with the law, no difficulty whatever is foreseen in the collection of reliable and satisfactory statistics of our coast net and trap fisheries. Indeed, it will be the effort of this commission to make the figures thus collected as nearly accurate as possible; for it is well known that the data secured in the ordinary personal canvass for fishery statistics, which must unavoidably depend in large measure solely upon off-hand estimates, — often the wildest sort of guessing, — can scarcely be deemed either reliable or satisfactory.

Shore Weir and Net Fisheries. — Again the mackerel has failed to approach the coast in large numbers; it has instead frequented the off-shore fishing grounds, as it did last year. Consequently, there has been disappointment with the season's fishing with pound nets, weirs, traps and gill nets.

Cape Cod bay is the region most seriously affected by the failure of the mackerel to strike inshore, for the pound-net or weir fisheries are most important there, and the mackerel being relied upon more than any other species for success, its abundance or absence are matters of prime consequence to the fishermen. It is true the loss resulting from the scarcity of mackerel along our shores has in part been made up by the abundance of other species, notably the squeteague. But this scarcely satisfies the fishermen, who attribute the absence of the mackerel to the presence of the squeteague in such large numbers; hence they fail to appreciate the latter, the abundance of which has often caused it to be a drug in the trade and marketable only at a loss, and doubtless they would be glad if it left the waters north of Cape Cod, as in former years.

The tables published in the Appendix show in detail the statistics of the fisheries included under this head; but, owing

to the fact that similar figures have not previously been presented, it is not practicable to institute comparisons with other years, except so far as lobsters and lobster traps are concerned. It can only be said that the fisheries here considered were not generally prosperous, or at least less so than was anticipated or hoped for.

The appearance of a large body of squid in Cape Cod bay late in the season was an advantage to the weir fishermen, though not sufficient to counterbalance the scarcity of mackerel or the failure of the fall run of herring. Mr. I. M. Small of North Truro, in a letter dated Oct. 26, 1901, makes the following statement: "We are having an immense run of squid in the bay, — something far beyond all record. They have been running on to the beach in such numbers that about fifty barrels were gathered up by men and boys on the shore last night, and found ready sale at the cold storage at \$1 per barrel." But this was after the season covered by this report, and, even if the squid had arrived sooner, the profit derived from the capture of this important bait species was not sufficient to make up for the light catch of mackerel or other high-priced products, or the failure of the fall catch of herring.

The cause of the scarcity of the mackerel in its usual haunts in our in-shore waters, and its persistence in remaining off shore on the deep-sea fishing grounds, is one of those questions concerning which there is much conjecture and a wide divergence of view. All that can now be said with certainty is that this action is in harmony with the well-known and widely recognized erratic habits of the mackerel, which is so unreliable in its movements, abundance, etc., that what it does one year seems to be no basis whatever to judge by as to its presence or migrations the next season. The general subject is an interesting one, but lack of time and space forbid any consideration of it here.

Lobster Culture and Lobster Fishing. — From year to year, for a long period, the reports of this commission have invited attention to the lobster, and it has been pointed out how the lobster was decreasing in the waters of this Commonwealth. The necessity for more stringent and effective legislation, to arrest this decadence, has repeatedly been urged upon the General Court. It is true that something has been done to

secure protection, but it is too evident that much yet remains to be accomplished, unless citizens of this State are content to see the lobster become commercially extinct along our coasts, and that within a measurably brief period, — so short a time, in fact, that we now seem to be almost on the verge of it. It is nothing less than blind folly to ignore this, and, if future legislation fails to recognize it, or grants greater freedom in fishing, it will not be difficult even for the non-expert to predict the ultimate result.

No longer is there justification for deluding ourselves with the belief that the artificial propagation of the lobster can arrest its decadence in this State to any great degree, and the chance of doing this grows alarmingly less every year. It is well known that the United States Fish Commission has made a most zealous and commendable effort to stem the tide. It has spent both money and labor to restock our waters with lobsters, and has in recent years done all in that direction that seemed possible of accomplishment. It has not been stinted in means, and, though it has been working for the benefit of the fishermen, it has paid full market price or more for every obtainable egg-bearing lobster, so that as many as possible could be secured. And right here let it be said that the lobsters produced from the eggs thus secured are that many added to the natural production, for, if the females were not purchased by the commission, the eggs would in most cases be stripped from them, and they would be sold for food. And it may be added that the female lobster, after being stripped by the spawn takers of the commission, is thrown into the sea, so that it may produce eggs again, if it escapes the fisherman's pot and the market.

The following reports from the superintendents of the Gloucester and Wood's Hole stations show in detail what has been accomplished this year at those points in the artificial propagation of the lobster, and incidentally make known to us the serious decline in the numbers of eggs that were obtained, as compared with last year: —

U. S. COMMISSION OF FISH AND FISHERIES,
GLOUCESTER, MASS., Oct. 28, 1901.

Capt. J. W. COLLINS, *Chairman, Board of Commissioners on Fisheries and Game, Boston, Mass.*

DEAR SIR: — I submit herewith a report of the lobster hatching operations at Gloucester, Mass., station during the season of 1901.

The season opened under adverse conditions; the continuous stormy weather during April and the early portion of May practically put a stop to lobster fishing in this vicinity, and made collections of egg-lobsters impossible. It was not till May 11 that we received the first egg-lobsters, from which date collections were made till July 10. The field of collecting operations in Massachusetts took in the principal fishing centres between Cape Ann and Cohasset.

In spite of every effort made to make the collections as large as possible, the season's receipts showed a decrease of about 25 per cent. from those of the previous season. This decrease, however, is entirely accounted for by the great falling off of the collections made from the Boston lobster dealers, which was 50 per cent. less than the previous season. The collections made directly from the fishermen show a slight increase over the previous season. The total receipts from Massachusetts amounted to 1,639 egg-lobsters, which yielded 21,203,000 eggs, from which were hatched 19,300,000 fry. These fry were distributed at various points along the shore, from Cape Ann to Cohasset, as were also 12,970,000 fry obtained from eggs taken outside the State, making a total of 32,270,000 fry planted in Massachusetts waters.

As in previous seasons, collections were made in New Hampshire and Maine, amounting to 30,010,000 eggs, from which were hatched 27,970,000 fry.

Very respectfully,

C. G. CORLISS,

Superintendent.

U. S. COMMISSION OF FISH AND FISHERIES,
WOOD'S HOLE, MASS., Oct. 18, 1901.

Capt. J. W. COLLINS, *Chairman, Board of Commissioners on Fisheries and Game, Boston, Mass.*

DEAR SIR: — In accordance with the request contained in your letter of the 15th instant, I beg leave to submit the following brief report of the work done in propagating lobsters at this station during the season of 1901.

Operations were conducted on practically the same lines as during the past few years. Collections were made at Scituate and Plymouth

on the north side of Cape Cod, and from the territory included in Vineyard Sound and Buzzard's Bay.

The receipts in eggs were very discouraging, being the smallest we have known for several years, even though the price offered the fishermen for the egg-lobsters was the highest ever paid. The total number of eggs received from Massachusetts waters was 5,476,000, being less than 50 per cent. of the number collected from the same territory in 1900. One-third of these eggs were received from the fishermen at Cuttyhunk. These eggs produced 4,940,000 fry, which were liberated in the waters of this State.

As in former years, collections were made from Connecticut and Rhode Island waters, the total number of eggs received at the station during the season being 18,262,000. From these were hatched and planted 13,945,000 fry.

Yours very truly, E. F. LOCKE,
Superintendent.

Although the foregoing reports show a trifling increase in the number of lobster fry deposited in Massachusetts waters, as compared with last year, it will be observed that nearly one-third of these were obtained from eggs collected in other States; to that extent this Commonwealth was benefited. At the same time, it will be noticed that the falling off in eggs and fry obtained from lobsters taken in the coast waters of this State was very marked, amounting to more than one-half at Wood's Hole and to one-quarter at Gloucester. The following tabulated statement presents the comparative figures with exactness:—

Table showing Comparative Statistics of Lobster Culture by the United States Fish Commission at the Massachusetts Coast Stations in 1900 and 1901.

	1900.	1901.	Percentage of Decrease.
Number of egg-lobsters, . . .	2,828	2,045*	27 $\frac{2}{3}$
Eggs obtained,	40,231,000	26,679,000	33
Fry hatched,	36,449,000	24,140,000	34

* Inasmuch as the number of egg-bearing lobsters obtained for the Wood's Hole station has not been stated by Superintendent Locke, they have been roughly estimated at one-half the number of the previous year, which is no doubt a close approximation to the actual number.

When we see a decline in one year of nearly 28 per cent. in the number of egg-bearing lobsters it has been possible to obtain, a decrease of 33 per cent. in eggs, which indicates a decreasing yield per lobster, and a falling off of 34 per cent. in the number of fry hatched from Massachusetts eggs, the condition, so far as the artificial culture of the lobster is concerned, is one that is not encouraging, to say the least. But if we carry the comparison farther back, we obtain results still more impressive, if not startling. In 1894, only seven years ago, it was practicable to secure for the Wood's Hole station, with less effort than is now put forth, 97,635,000 lobster eggs, while this year only 5,476,000 could be gathered. If, then, authorized statistics prove that decadence has been so great in seven years that, roughly speaking, there is only one-nineteenth of the egg-bearing lobsters now in the southern section of the State that there were in 1894, and only one-half as many as last year, it is evident that we are approaching the time when breeding female lobsters will be almost exterminated from our waters, and when it will no longer be possible to carry on lobster culture upon a scale sufficiently large to have any considerable influence upon the continuance of the species. When that time arrives, the skill of the fish culturist and generous appropriations of the federal government will alike be unavailing to restore the lobster, unless efficient measures are taken to regulate and control its capture.

It is not, however, alone in the fish-cultural work of the United States Fish Commission that evidences are found of a marked decrease in the lobster off our shores. The statistics gathered by this commission show that there has been a decline of 24 per cent. in the catch per pot since last year, — and it is the average catch per pot which shows, more clearly than anything else can, the actual relative abundance of the lobster.

The following tabulated statement, from returns received by this commission, shows very clearly the decrease of the lobster fishery in this State during the past fourteen years: —

Comparative Table showing the Statistics of the Lobster Fishery in Massachusetts, 1888 to 1901.

DATE.	Fishermen.	Traps.	Lobsters.	Egg-bearing Lobsters.	Average Catch per Pot.
1888,	367	21,418	1,740,850	—	81
1889,	344	20,016	1,359,645	61,832	68
1890,	379	19,554	1,612,129	70,909	82
1891,	327	15,448	1,292,791	49,973	84
1892,	312	14,064	1,107,764	37,230	79
1893,	371	17,012	1,149,732	32,741	62
1894,	425	20,303	1,096,834	34,897	54
1895,	377	17,205	956,365	34,343	56
1896,	453	22,041	995,396	30,470	45
1897,	388	18,829	896,273	23,719	48
1898,	340	16,195	720,413	19,931	44
1899,	327	15,350	644,633	16,470	42
1900,	309	14,086	646,499	15,638	46
1901,	331	16,286	578,383	16,353	35

Additional verification of decrease in catch is found in personal statements, both written and verbal, that come to the commission from fishermen, sea-shore residents, dealers and others who have had opportunities for observation.

This condition is, however, nothing more than may be expected, having in mind the general disposition to ignore protective laws, even at much risk. The experience through which Massachusetts is now passing is common to all lobster-producing regions, except where there are stringent repressive laws, well enforced. New Jersey, New York and Connecticut no longer possess a lobster industry of any importance, and even in Newfoundland, where lobster fishing was inaugurated on a large scale only a few years ago, there is complaint of a rapid decline in abundance.*

According to the latest report of the Newfoundland Department of Fisheries, there has been a marked falling off in the catch of lobsters on the coast of that province very recently. This report shows that the average annual exportation of lobsters in the two years preceding 1900 amounted to 63,558½

* In 1887, when the writer was at Seldom-Come-By harbor, on Fogo Island, east coast of Newfoundland, a local fisherman brought alongside the "Grampus" a lot of fine lobsters which he had gaffed from under the half-submerged rocks just beyond low-water mark. Where the lobster was sufficiently abundant for this to be done only fourteen years ago, it is now scarce.

cases, while in the latter year, so far as could be ascertained, it fell off to 36,894 cases. "This falling off," remarks the minister of marine and fisheries, "which we share in common with other lobster-producing countries, shows the urgent need of increased efforts to lessen the decline, and the utmost vigilance in enforcing existing rules and regulations, so as to conserve, as far as possible, this valuable industry."

It would appear from this report that Newfoundland is passing through an experience similar to that which has come to all lobster-producing sections of North America; and the fact that its fisheries did not sooner show evidences of an alarming decadence is due solely to the fact that the establishment of the lobster industry in that province is a matter of such recent date. It has already been found necessary to apply a close season, in order to prevent the ruin of the lobster-packing industry.

"Considering the importance of the lobster fishery to the colony," says the report, "and the large number of people dependent to a considerable extent on this industry, the importance of protecting and regulating it becomes apparent to all. Two years ago the condition of this fishery was sufficiently alarming. The size of the lobsters was reported to be diminishing and their number decreasing in many places, as a result of over-fishing and taking of immature lobsters before they had reached their spawning age. A stringent application of carefully considered rules and regulations, and the entire prohibition of fall fishing have had a salutary effect in improving matters and placing this industry in a healthier and more hopeful condition. . . . The board are satisfied that the abolition of fall fishing has been especially beneficial, and that its enforcement in the future is most desirable. Opposition to this measure, once so strong, has now almost ceased and both packers and fishermen appear to be almost unanimously in favor of the rule."

What can be done to arrest the decline of the lobster and restore its abundance in our waters? That is the important question which now challenges the reasonable and intelligent consideration of every citizen who has an interest in this matter, and especially should it have the thoughtful attention of those who are not influenced by any motive or desire but to secure conditions which will promote the public welfare.

It has been demonstrated that present laws, with inadequate means for their enforcement, cannot accomplish all that is desired or necessary. While arrests have been made and convictions have been secured, and the records show that 1,490 short lobsters and 19 egg-bearing females have been restored to sea by the deputies of this commission, it is not within the limits of human possibility for only three or four deputies, working in pairs, whenever possible, to keep under observation all the lobster fishermen and dealers along our extensive coast line. Present laws are helpful, but they are insufficient, and there seems to be a wide-spread demand for additional restrictive legislation. The common suggestion is for a close season; but ideas as to what a close season should be are as various and numerous as the individuals who advance them, thus showing lack of unification of purpose. Still, the very fact that suggestions of this nature have come spontaneously from so many, without the knowledge of each other, indicates most forcibly the prevailing thought and the need of action of some kind, while the character and extent of the action which it will be wise to take may possibly be arrived at by a full consideration of all the purposes to be served. Following are a few extracts from letters received by the commission, which deserve attention in this connection, since they not only show the desires of the writers (most of them fishermen) for greater restrictions, but also indicate the deplorable condition of the lobster fishery:—

Mr. H. P. Taylor of Brant Rock, in submitting his return for lobster fishery for 1901, makes the following statement: "After forty-two years' experience in the lobster fishery, I, as an individual, would propose to have a close season from the first of June up to the first of August for three years."

Mr. George F. Freeman of South Duxbury, in submitting the report of his lobster fishery, makes the following statement: "I am driven right out of the business, and have sold out everything this spring. It seemed hard for me to heave overboard twelve and fifteen short lobsters out of every pot, and the next one put them into his boat. I could not stand it any longer. Short lobsters have been caught here all summer, and I hope and pray that you will make a close season, and stop fishing in bays. A lobster here next season, 1902, will be a curiosity. You will never stop this short lobster business

until there are different laws made. I propose a close season from the first of April until the first of August, and close the bays so a lobster will have a chance for his life. But I am through with it, and do not care."

Mr. George Wheeler of Dennis, Mass., in submitting his report says: "The lobster is fast being wiped out. Our stringent laws seem to have little effect on most fishermen. . . . I love the water and lobstering, but I sincerely hope you will succeed in having a close season for at least three years."

Mr. H. E. Dunham of Nantucket says: "Lobsters have been very scarce around here this year. They have dropped off 50 per cent. every year for the last five years. I think the only way to save the lobster is a close season for five or ten years."

Deputy Burney in his report for the week ending July 7, makes the following statement relative to the scarcity of lobsters along the north shore of Massachusetts Bay: "In my trips along the coast I find a large number of fishermen have taken up their traps, owing to the great scarcity of lobsters. Those whom I talked with tell me it does not pay to bait and haul fifty traps, and find only eight or ten small lobsters."

Mr. I. M. Small of North Truro, ex-member of the Legislature, writing on Oct. 26, 1901, advocates a close season, in the following words: "I am glad to see that the lobster agitation of last winter is showing thus early some indication of bearing fruit, in the proposition for a close season. My action at the last session in voting for the nine-inch bill, as I think I have stated to you before, was influenced mainly in the belief that such action would sooner bring about the only remedy, namely, a close season. The lobster can never be protected by limiting the length; men must stop catching the fish, totally; and I am personally against a close season of anything less than five years. If people expect in the future to enjoy the lobster, they must forego the luxury for a considerable period. If we expect this shellfish ever to be plentiful again in our waters, we must begin at once to make provision for it. We must stop catching them altogether, or expect to see them extinct in the near future. A close season of a few months will meet with difficulties of enforcement, just as the present length limit does. The protection must be made so strong as to

demand that for the present the business shall be entirely abandoned."

On Aug. 12, 1901, Mr. C. V. McMahan of Vineyard Haven returned the lobster blank sent him, with the following remark: "I am not fishing for lobsters this year, so I will return the blank. Those that are fishing for lobsters do not catch enough to pay them."

The only protest against a close season received by the commission comes from Provincetown, where the fishermen, while realizing something should be done to stay the decadence of the lobster, claim that a close season that prohibits summer fishing would cut them off entirely from participation in the industry, due to the fact that the lobsters they catch come in from sea in May and depart in September. This claim is doubtless well founded, as is also the claim that small lobsters are rarely taken at the tip end of Cape Cod. This would of course present no obstacle to a close season for a term of years. But it is probable that a close season for a certain number of months each year, if legislation of this kind is attempted, will meet with less opposition, and will give wider satisfaction than absolute prohibition of fishing for a term of years. And, if an annual close season is made to cover the months when the lobster is most in need of the protection that can be derived from a prohibition of fishing, if the present laws are also retained or better ones enacted, and adequate provision is made for their enforcement, there is reason for believing much can be done to stay the decadence of the lobster, and possibly to increase it, in our waters.

It is evident, however, that a close season for a term of months each year, if it is to be effective, should include at least a portion of the time when the female lobsters are carrying their eggs, also the spawning period and the shedding season. This would certainly embrace the period during which lobster fishing is prosecuted at Provincetown, if no longer; for the spawning and shedding seasons, having in mind the time for the shells to come hard, cover the full period from May to September. And this is the time, it may be incidentally remarked, when the bulk of the short lobsters taken are disposed of; it is then that more is done to deplete the lobster and to destroy the fishery for it than can be done at any other period of the

year. For a portion of the time, too, the lobster is molting, and during its soft-shelled period it is unfit for food. Generally the fishermen are compelled to keep their pots out of the water for a greater or less length of time in mid-summer, because of this.

It is true, if fishing is prohibited at this season, it would not be practicable for the United States Fish Commission to continue lobster culture in this State, except the eggs are obtained elsewhere. But this need cause no anxiety, for man cannot improve upon nature, if the female lobster is undisturbed during its breeding season; the only proper reason for artificially hatching lobsters is to save what otherwise might be lost, and this is the motive that has controlled in this work.

Reference is made to the report of Dr. George W. Field and to the statistics of the lobster fishery for additional facts bearing on the matters discussed under this head. The suggestions offered by Dr. Field for the protection of adult lobsters as a means to continue the species deserve attention. Assuming that enough of the immature lobsters to increase the adult supply may each year escape the fishermen's pots, and attain a size which will exclude them from capture, and also assuming that the law he proposes can be efficiently enforced, the radical change in protection which he advances may prove advantageous. Some practical difficulties suggest themselves in the administration of the law, but it is possible these may be overcome.

Cultivation of Clams. — Attempts were made at the last session of the General Court to secure some kind of legislation which would authorize the cultivation of the clam (*Mya arenaria*) under the protection of law. Some of the bills introduced aimed to secure private ownership and control of certain areas of clam-producing flats, and one had for its object the cultivation of clams by the State. The latter contained the following provisions: —

SECTION 1. The commissioners on inland fisheries and game are authorized and directed to carry on the cultivation of the soft shell or long neck clam upon such areas of flats as they may select from time to time for that purpose: *provided*, that any flats so selected shall not exceed one-third the area in any town where transplanting or other work necessary to the cultivation of clams is undertaken.

SECTION 2. In the pursuance of the work of the cultivation of clams the commissioners on inland fisheries and game or their deputies shall have the right to enter upon any of the clam flats in any town and to take therefrom young or undersized clams for the purpose of transplanting them to areas reserved for cultivation by the state.

SECTION 3. Digging clams on the areas thus selected and reserved by the state for cultivation is hereby prohibited for such time as the commissioners on inland fisheries and game deem necessary for the transplanted clams to attain mature growth, but not to exceed three years; any one digging clams on flats thus reserved shall be fined not less than twenty nor more than fifty dollars, or imprisonment not less than one month.

SECTION 4. At such time as the commissioners on island fisheries and game shall deem desirable the flats thus reserved for the cultivation of clams shall be opened to public digging, free to all; and notification of the time when this is to occur shall be posted on the shores near the flats, and published in the local press, if there is any, not less than one week before digging is permitted.

SECTION 5. When an area of flats whereon clams have been cultivated by the state is opened to the public, the commissioners on inland fisheries and game can proceed to reserve another area of flats for the cultivation of clams, as provided in sections one and two of this act.

SECTION 6. There shall be allowed and paid annually from the treasury of the Commonwealth a sum not exceeding twenty-five hundred dollars to carry out the provisions of this act.

SECTION 7. The executive officers of any town or city within which the cultivation of clams is undertaken by the state shall appoint a warden, whose duty it will be to prevent trespass upon areas of flats reserved by the state.

SECTION 8. All acts or parts of acts inconsistent herewith are hereby repealed.

There seemed to be general opposition to any measure looking to the acquirement of private control of clam flats, due to the feeling that all citizens have constitutional rights, so far as clam digging is concerned, that should not be legislated away for the benefit of any private person or corporation.

The opposition to the bill above quoted came chiefly from the towns of Ipswich and Salisbury, and was doubtless due to some misapprehension of the purpose of the bill, and also to a fear that the clam areas in those towns might pass from the control of the town officials, and thus be opened to citizens of

other towns, — at least the cultivated sections. Whether there was any proper ground for apprehension regarding the practical working of this bill will doubtless remain a matter of opinion, influenced, as it may be, by local or other interests. Suffice it to say that the bill was defeated before the committee, and failed, as the others did, to be favorably reported. At the same time it is worthy of mention that evidence presented to the committee, by one connected with experiments made by the United States Fish Commission at Duxbury, was to the effect that clams which were transplanted there, and of which a careful record was kept, increased in size (and consequent value) fully 1,700 per cent. in fifteen months. Whether, in view of this statement and more or less corroborative testimony in the published accounts of these or other experiments, sufficient reason is found for the passage of some act which will authorize the State or others to engage in clam culture, remains to be seen.

In the mean time, it is interesting to note that Mr. Fitz J. Babson of Gloucester has started a "clam farm" of his own; and the result of his experiment, which already seems assured, may lead others to adopt similar methods.

The Gloucester "Times," after referring to the experiments conducted by the United States Fish Commission, says: —

Now this is practically what Mr. Babson is doing on his farm. The only difference is, that he did not take nature's own flats for the purpose, but went to work and made flats of his own. All natural clam flats are public property by law, and clam farming has in the past been unpractical, because a man would not care to go to the work of seeding a portion of the common flats, and then, after he has done all the work, have somebody come along and scoop the clams and the profits, which the latter would have a right to do, being on the public flats.

After getting the top surface off the farm, Mr. Babson went to work and dug rows about a foot deep in the muck. Into these rows he put small seed clams, as big as a quarter, and then covered them with muck raked out.

That was two years ago. This year the promoters of the scheme have been down and dug some clams, and the increase in size is said to have been remarkable. The clam is a very rapidly growing shell-fish, and this experiment of Mr. Babson's has proved it.

They will not be dug to any extent this season, as Mr. Babson has decided to let them remain three years before making a complete examination of the bed. There is no doubt that the experiment will be a splendid success, and the original idea of making a clam bed for farming purposes, which the promoter can protect by law, where he couldn't the clam flats, promises to open up a business which will give to future generations a good business, with large returns.

It is altogether probable that the artificial beds made by Mr. Babson will prove less prolific than natural flats that uncover only at low tide, and which are submerged, with the exception of an hour or so at low ebb, thus supplying superior opportunities for clams to feed. But he may, nevertheless, find cultivation of private beds more advantageous than depending on more favorably located public areas, for the simple reason that many of the latter have been "dug out" to such an extent that they are practically barren, while still possessing great potentiality of bearing if properly "seeded down" and protected for a year or so.

Whether we have reached the condition when it is necessary to undertake, officially or otherwise, the improvement of clam-bearing areas, is a question which should receive the earnest consideration of those most concerned: But when it is difficult or impracticable to secure for food any but small and comparatively worthless clams, the average citizen has an interest in this matter scarcely second to the fisherman; and undoubtedly it will be to the advantage of both if means can be taken to bring about better conditions.

Sea Fisheries. — A notable feature of the sea fisheries is the unusually small loss of life and property. Having in mind the terrible fatalities of other years, when it was not uncommon for several fishing vessels to founder in a single gale, going down with all hands, — often fifty to one hundred men, — the greater exemption from such disasters at this time is of inestimable advantage to the fisheries. It is true twelve fishing vessels have been lost during the year, but only one of these was lost at sea with all hands; she was a schooner of the old-fashioned shallow type, now recognized as unsafe. The other vessels were stranded chiefly, but one was burned in harbor and one was run down by a steamer and sunk, one of the crew being lost as a result of the collision. Only thirty-nine men were

lost in the fisheries from Massachusetts, so far as the returns show.* Fourteen of these were lost in one vessel; of the others, some were washed overboard (one jumped overboard to save his son, and was drowned) and some were lost in dories, though the fatalities from the latter cause were perhaps never so few. On the whole, it has been demonstrated that the new class of vessels are as safe as it seems possible to make them, and that greater care is being taken to secure the safety of men going out in dories.

The success of the sea fisheries which will be considered here was not quite so pronounced as last year so far as quantity of products is concerned, although it was superior to anything attained for a number of years prior to 1900. It is possible here to make only the briefest reference to some of the more important features, although the importance of the industries coming under this head might justify more extended mention.

The mackerel fishery has on the whole been less favorable than it was last year, but the falling off in the total catch has not been large, and probably may be accounted for by the prevalence of unfavorable weather during a portion at least of the season. The reported catch of the New England fleet, composed for the most part of Massachusetts vessels, was 68,479 barrels of salt and 65,579 barrels of fresh mackerel; this gives us a total of 134,058 barrels. But these figures embrace only the fresh fish received at Boston. Conservative estimates place the fresh mackerel marketed at New York and other ports (that did not ultimately come to Boston) as fully 25 per cent. of the fresh fish landed. The total catch of fresh mackerel, according to this estimate, was 81,974 barrels, making an aggregate yield for this fishery of 150,453 barrels of salt and fresh fish.

The marked feature of this season's mackerel fishery is the growing tendency to market the catch fresh. According to the reports available, the salt mackerel catch of 1900 exceeded that of this year by upwards of 19,000 barrels, while the fresh mackerel received at Boston this season was more than 10,000 barrels greater than last year.

* This enumeration does not include fishermen who died from disease, or a shore fisherman who was found drowned in a dock at Plymouth; but it does include some who were killed by mishap, like falling from aloft.

The season's fishing, notwithstanding rough weather, opened auspiciously. Good catches were made by both seiners and draggers * on the southern mackerel grounds, and were landed for the most part in New York. The fish were mostly of extraordinary size, and the outlook for a prosperous season was encouraging. Later, success was interrupted by fogs, and after the mackerel advanced farther north in their migrations, they seemed to scatter somewhat, and it was difficult to "keep run" of them, although good fares were obtained from time to time throughout the season by the lucky ones of the fleet, and not a few made large stocks.

Captain Jacobs, of the auxiliary schooner "Helen Miller Gould," is credited with landing the first mackerel of the year at Norfolk, Va.; and a few days later, on April 11, another Gloucester schooner, the "Monarch," marketed the first fare of the season at New York.

The following will indicate the success of the southern fishery: On April 25 the schooner "Helen Miller Gould" arrived in New York with a fare of 550 barrels of fresh mackerel, which was considered a "record breaker." On May 10 it was reported that about 100 fares were landed at New York from netters and seiners. The fish were so large and in such fine condition that they sold at good prices, despite the large receipts. The "Helen Miller Gould" sailed from Gloucester on her first mackerel trip on March 24, and was destroyed by fire at Sidney, C. B., October 25. She earned in that time a gross stock of \$28,500. When it is stated, on the authority of Captain Jacobs, that within the period above mentioned the vessel was "tied seventy-two days at the wharf during good mackerel times, having the engine repaired," the magnitude of her earnings will be more impressive.

The schooner "Richard Wainwright," of Gloucester, landed a fare of mackerel in September that sold for \$6,264.70. The "Wainwright" stocked \$26,000 for the season; the "Margaret Haskins," \$22,000; "Henry M. Stanley," \$19,000; "Mary A. Harty" (auxiliary), \$18,600; "Grayling," \$16,300; and

* Vessels fishing with long strings of gill nets, which are set at night. A long net warp or "swing" holds a vessel to the lee end of the nets, which are kept straight in the water by the schooner drifting or dragging them; hence the name. This method is called drift-net fishing in Europe, but has always been termed dragging in New England.

“O. W. Holmes,” \$15,500. All of these six vessels sailed from one firm, and their earnings have never been excelled in the mackerel fishery by a similar number of vessels of one ownership, except last year, when four of the same schooners stocked an aggregate of about \$100,000. The mackerel season covers about seven months, and consequently the stocks given above do not represent a full year's work for any of the vessels.

There is a general impression that the bank cod fishery has not been successful. This may be true, as compared with some other seasons, if the aggregate catch is alone considered. But it is worthy of note that certain Gloucester vessels have brought remarkable fares from the banks, so that, with the prevailing high prices, they have made extraordinary stocks. Reference can be made, however, to only a few of these, sufficient, it is believed, to show that any apparent falling off in our salt fish product is due chiefly if not wholly to the growing tendency to market the catch fresh rather than to salt it, as in former years.

As early as June 4 it was reported that the schooner “Elector,” of Gloucester, had arrived from the banks with a fare of 300,700 pounds of salt fish, which sold for \$10,079.82. This was one of the largest stocks ever made from one fare in the salt cod fishery, and had never previously been equalled from a bank trip in May. The “Elector” was successful on her second trip, so that she made a total stock of \$19,862 for the season's bank fishing. This is rarely equalled. The schooner “Columbia” stocked \$14,500 in the cod fishery. The schooner “Independence” arrived home from her maiden trip on September 22, with a fare reported to be 375,000 pounds, — the largest catch of the season to that date. In August the schooner “Dora A. Lawson” landed a fare of 254,000 pounds of salt codfish, and stocked \$7,778.96. About the same time the schooner “Ella M. Goodwin” landed 300,000 pounds of bank cod. In the latter part of August the schooner “Joseph Rowe” arrived home with 270,000 pounds of salt fish, and stocked \$8,612.

Fine fares were also received from some of the banks nearer home, but in some cases at least the fish were fresh when landed. The schooner “Gossip” landed, on September 21,

200,000 pounds of fresh codfish, reputed to be the largest fare of exclusively fresh codfish ever brought in. Schooner "Belle Franklin," which arrived at Gloucester early in June, from a trip to Nantucket shoals, stocked \$2,260, her crew sharing \$103.88 each. She was probably absent from port about two weeks.

The data at hand also indicate fair catches in the Georges bank cod fishery, and occasional good fares of halibut, but these cannot be mentioned in detail. Large fares of fresh halibut from the Atlantic banks are now rare, but the schooner "Anglo Saxon" landed 85,000 pounds at Gloucester on April 9. Schooner "Senator" stocked \$7,900 as a result of two halibut trips "which consumed seven weeks."

Swordfish were scarce during the larger part of the summer, and the catch was small.

On the whole, the market fishery has been good, and some large stocks have been realized. Among these the following are a few selected at random:—

In exactly one year, Sept. 18, 1900, to Sept. 18, 1901, the schooner "Effie M. Morrisey" is credited with stocking \$30,000, which gave her crew a share of \$780 each. The schooner "Mary G. Powers," of Boston, is credited with having stocked \$30,000 in round numbers during the year. The schooner "Benjamin F. Phillips," which was launched late in the spring, sailed on her first trip June 4, and on November 21—a period of five months and sixteen days—she had earned a stock of \$21,449.53. This is believed to be a record in the market fishery, and may be considered still more remarkable because ten days of this time were lost on account of the so-called "Fisherman's race," in which this vessel won the first prize. The schooner "Clara R. Harwood," of Rockport, had stocked about \$27,000 up to the first of December, and was still at work. Her crew has shared \$1,200 each. She is one of the smaller of the market schooners,—about 40 tons,—and has probably made the largest stock and share of any vessel of her size. The schooner "William A. Morse," of Provincetown, stocked \$20,000.

The herring industry, particularly the pickled herring trade and the curing of smoked herring of the kind ordinarily designated as "bloaters," has been prosecuted more largely than

common. A fleet of twenty-eight schooners* went to Newfoundland this fall for cargoes of salt herring, but the reports received show that most of these fish will be salted in bulk, and that the question of careful cure will be practically ignored. The system by which quantity is considered preferable to quality, of which the consequent result is a catering to a cheap trade, seems to be still preferred, so far, at least, as can be determined from the data at hand.

Under existing conditions, with the American-cured herring valued far below what it should be, and with an evident difficulty to surmount in any effort to improve a long-established low reputation, it may be considered unprofitable by those engaged in the trade to make a determined attempt at change, especially with cargoes obtained late in the season on the north-west coast of Newfoundland, where it is considered an important question to secure a large cargo of fish as soon as possible and depart for home, quantity being deemed of more consequence than quality. Nevertheless, the matter of properly curing herring for our market is one of the most important questions that confronts the New England fish trade to-day; and it is to be hoped that well-directed effort will be made to insure the best cure and consequent high prices. It is certainly remarkable that our fishermen, who are noted for the care they give to the cure of mackerel, — to which alone their success in the mackerel fishery is due, — should be indifferent to the cure of herring, especially when, by the intelligent co-operation of fishermen and dealers, the field for improvement and consequent profit seems superior to any now available in the North Atlantic fisheries.

An instance illustrating present conditions is found in the fact that, about mid-summer, one of the schooners of the mackerel fleet made a large catch of fat summer herring on the off-shore fishing grounds. These fish — 200 or 300 barrels — were salted in bulk on deck, *without being dressed or cleaned in any manner*. When the vessel arrived the herring were sold for \$2 per barrel, according to the Boston Fish Bureau report, when, if properly cured, they should have readily commanded a price of \$9 to \$11. That this is true is evidenced by the

* Six of these vessels — five from Bay of Islands and one from Bonne Bay — were reported on their way home November 16, with 8,000 barrels of salt herring, in bulk.

fact, patent to all who care to ascertain the truth, that herring imported from Europe sell at prices by wholesale ranging from \$9 to upwards of \$14.*

The importance of the demand for herring in the United States has been forcibly pointed out by Mr. Alexander T. Duthie who recently visited this country under the auspices of the Department of Agriculture and Technical Instruction for Ireland, as the fish trade expert of the Congested Districts Board, Dublin. His report shows that about 35,000 barrels of Scotch and Irish herring are annually imported at New York, and that between 30,000 and 40,000 barrels are received at Chicago, practically all of the latter from Holland and Norway.

But it is not only the growing demand for superior salt herring, which has carried New York importations of such fish from 500 barrels fifteen years ago to 35,000 barrels to-day, but it is the price paid for these herring that demands special attention. "While the price paid in New York last year for prime Scotch herrings," remarks Duthie, "ranged from \$9 to \$12 per barrel, the Donegal herrings were sold at prices from \$11.50 to \$13.50 per barrel." He also invites attention to the fact that "during the past season about 2,000 barrels of Newfoundland herrings, cured in the Scotch style, . . . were sold at from \$8 to \$9 per barrel."

The demand for herring in the west and north-west comes chiefly from natives of northern Europe or their descendants; but in New York the salt herring is in great favor among the Jews, who are believed to number fully half a million. "They are great consumers of herrings," says Duthie, "and frequently use them at every meal, when they can be procured. They are

* The following, from the "Fishing Gazette" (New York) of Nov. 16, 1901, is interesting in this connection: "We note the arrival this week of a small lot of new fat Norway herring to a west side up-town importer. They are KK size wholly, and are held at \$12 or less, but another importer, who has also had some come in, is quoting from \$12 to \$14 on KKK and KKKK sizes alike. . . . A down-town importer this week received 75 barrels Newfoundland Scotch-cured herring by the 'Silvia,' and we are informed that more are to follow in regular shipments. At this writing (Friday) they had not been opened, but our information is that if they turn out well the price will be fixed at about \$10 per barrel." In its issue of Nov. 23, 1901, the "Gazette" says:

Last winter choice, large, fat Irish herring, counting from 450 to 500 [to a barrel], sold at \$14 to \$15.50 per barrel."

Contrast this with the following item in the Gloucester "Times" of Dec. 9, 1900: Newfoundland salt herring, \$3 per barrel. Salt shore herring, \$2.25 per barrel."

expert judges of both the quality and cure of herrings, and buy the best that can be got, for which they always have to pay the highest prices.”

The following assertion of Mr. Duthie, like the foregoing quotations, deserves the serious consideration of all who are concerned in the herring trade in this State, or who are liable to be: “The very best herrings of the best cure and condition find the most ready sale in the American market, and it is useless for shippers to think they can export profitably to America any inferior fish, or any fish, however good, unless they are well cured and made to suit the taste of the purchasers, and carefully and attractively packed in the best barrels. . . . A great injury would be done to this new industry if roughly cured and badly packed herrings were sent from Ireland to America.” He advises that “the herrings should be neatly gutted, carefully roused [stirred in pickle], and packed on their backs in the barrels. Just sufficient salt to cure the herrings should be used, and no salt should remain undissolved in the barrels after the herrings are cured. The ‘filling up’ of the barrels should be specially attended to. After sufficient time has been allowed for the fish to ‘pine’ in the salt, the barrels should be firmly filled, and great taste and skill shown in making a nice finish on the top rows of the herrings, so that when the barrels are opened the herrings will have an attractive appearance. These are the essential points to be attended to in curing for the American market.”

These statements have been quoted not only because they contain information and suggestions which are important to those engaged in the ocean fisheries of this State, but also to emphasize the fact that careless and slovenly methods of cure, which may have sufficed at one time, are no longer adequate; and, unless we are content to resign to foreign competitors one of the most important fish markets on this continent, it is imperative that no time should be lost in adopting the best methods for curing herring, and rigidly adhering to them. We surely cannot hope to succeed in controlling our own market, when deep-sea summer herring, which are equal to the best the world has, sell for the insignificant price of \$2 per barrel, simply because they have not been properly cared for. Nor could we long control our market for salt mackerel, if the

fish were salted in a great mass in bulk, without being cleaned or cared for in any way. Any New England fisherman knows that mackerel thus treated would be unsalable at any price; and the wonder is that, knowing this, he should consider herring really fit for market which have been uncared for except that they have had some salt thrown on them. The whole matter can be summarized in a few words: Is it worth while to make the herring as valuable as the mackerel, or nearly so, by adopting a proper cure, and thus controlling the already large and growing market in this country? Or will it be wiser to persist in using antiquated and unsatisfactory methods, with no thought beyond the present, and no ambition to improve the opportunity that is presented, and let our markets be filled with foreign products, and thus be pre-empted, to the detriment of American fisheries? It may at least be hoped that the intelligence and business enterprise, which have done so much in the past to develop the ocean fisheries of Massachusetts, will find a way to meet present requirements in the herring trade, even though it is never an easy task to break up the habits of years and institute new ideas and methods.

The effort made by this commission to promote the trade in cod roe between the fish merchants of this state and France has met with considerable encouragement. The shipments and sales have increased, much information as to the best methods of cure, packing, shipments, etc., has been disseminated, interest in the business has advanced materially with the acquirement of knowledge by those interested, and the present outlook for the development of the exportation trade in cod roe seems promising. In this, as in the herring fishery, the all-important thing is that the roe shall be properly cured and the barrels well filled before shipment. Until now little heed has been paid to these matters, with the consequence that the demand for American cod roe, never large at any time, practically ceased, despite the fact that the Norwegians have had a trade in this article alone exceeding half a million dollars annually. When it is understood that the roe which may be saved for this trade by Massachusetts' fishermen is ordinarily a waste product, that is usually thrown into the sea, the importance of creating a market for it may be better appreciated.

At the suggestion of the chairman of this commission, Mr.

Thorndike Nourse, formerly of this State, but resident in France for several years past, has taken an active interest in promoting a French demand for American cod roe. Not only has he visited the regions where the roe is used for bait in the sardine fishery, and personally conferred with those controlling that industry or those who deal in roe, but he has published in "The Gloucester Times" an interesting history of the development of the use of roe in the sardine fishery, and the trade in it. Since then much has been done to promote the exportation of American roe, and there is reason to hope that the coming year may see satisfactory progress in the development of this branch of trade, and that it may ultimately attain to considerable importance.

The success of the new auxiliary schooner "Helen Miller Gould" last year led to the building of several others which were fitted with naphtha or gasoline engines. Among these were the "Mary E. Harty," 122.15 tons gross and 77.48 tons net; the "Victor," 121.68 tons gross and 75.92 tons net; and the "Dorcas," of about 60 tons. All of these belong in Gloucester. Several auxiliary schooners, which are to be fitted with naphtha engines, are now building for next year's mackerel fishing.

It may be mentioned that several smaller vessels, averaging 15 to 20 tons each, had been previously built and fitted with naphtha engines. They are the "Quartette" of Lynn, the "Empress" of Salem and the "Lydia" of Beverly.* These have been successfully employed in the fall herring fishery. In the prosecution of this fishery by the "Quartette" the use of an electric light for attracting herring at night was introduced, and is reputed to have proved very satisfactory, more so than the old method of "torching" the fish with a fire at the bow.

The advantage of having some motive power other than sails for certain kinds of fishing is gradually being recognized, and, despite the conservatism resulting from invested interests, there is abundant reason for believing that the time is not far distant when a marked innovation may take place in vessels

* We are indebted to the Boston Fish Bureau for the names and hailing ports of the last three vessels named, and also for the name and tonnage of the "Dorcas." Hon. William H. Jordan, collector of customs at Gloucester, has supplied the information about the other two vessels.

employed in the market and mackerel fisheries. There is naturally a shrinking from incurring the cost of building steam vessels, and the added expense for running them, and it follows that, for the present, only the most adventurous will attempt to use anything but sails. It is also to be expected that first attempts at securing auxiliary motive power will aim to get something like naphtha engines, for instance, which will occupy the minimum of space, while comparatively little room will be required for fuel. But all this is more or less evolutionary, so far as large sea-going vessels are concerned; and while naphtha may prove useful on a small craft, there is apparently too much danger in using it on larger vessels to insure its general introduction. The destruction by fire, on October 25, of the auxiliary schooner "Helen Miller Gould," which resulted from ignition due to naphtha engines, proved how dangerous naphtha might be to life, if a vessel caught fire at sea, instead of in a safe harbor, as the "Gould" did.

Under all the circumstances, it is not surprising that her owner, Capt. Solomon Jacobs, is having a steamer built. This will be a wooden vessel, 141 feet 7 inches long over all, 24 feet beam and 12 feet depth of hold on main deck. She is 14 feet deep on quarter deck. She will have from 300 to 450 indicated horse-power and single screw, with estimated speed of 10 to 11 knots under natural draught.

The main engines, which are light and compact, are of the vertical, inverted compound type. The high-pressure cylinder is 12 inches, low-pressure cylinder 28 inches, and stroke of both 18 inches; cranks set at 90 degrees, and main valves of the piston type. The surface condenser has 600 square feet of cooling surface. The feed pump, air and circulating pump, and bilge pump are all independent. She will be fitted with two water-tube boilers, with working pressure of 150 pounds per square inch. The single smoke stack, 25 feet high, will be hinged at the deck so that it can be lowered when cruising under sail alone. She will have a four-bladed propeller.

The fish room or hold, between the fore-castle bulkhead and the machine or boiler room bulkhead, will be 50 feet long; this will be fitted with pens or bins in the most approved manner for the storage of ice and fish. She will have capacity for 40 tons of ice. She is also fitted with tanks that will carry 3,500 gallons of fresh water.

The striking feature of this steamer is its large area of unobstructed deck room, which is so highly important on a vessel engaged in the mackerel fishery.

“It is believed by many,” says the Boston “Herald,” “that the appearance of this vessel marks an era in the fishing industry, almost the last one in which the sailing vessel has held her own.” That this belief is justified, one who has watched the progress in this direction elsewhere can scarcely doubt. There is strong probability that steam will eventually win its way in certain of our ocean fisheries.

In view, however, of the space necessary for coal, not to speak of its cost, the production of some safe, compact and less expensive motive power than steam is a matter of much consequence to our deep-sea fisheries.

The fact that a fishing steamer, intended for halibut fishery on the north-west coast, is building in San Francisco for Boston owners, is a matter of considerable interest. This is a first-class sea-going vessel, upward of 140 feet long.

A change in the method of packing fresh fish on the market schooners, heretofore recommended by this commission, has been adopted on some of the new vessels, and the material improvement in the appearance of the fish when landed will doubtless lead to the general use of sliding or adjustable shelves in pens on all vessels bringing fresh sea fish to our markets. Capt. Maurice Powers, of the schooner “B. F. Phillips,” who made the remarkable stock already alluded to, told the writer that he had the shelves fitted to the pens when his vessel was new. Although their adoption necessitated the use of a slightly increased amount of ice, the fish came out in such superior condition that the additional expense was more than counterbalanced.

The following statements, which are extracted from a recently published report on “The International Fisheries Exhibition of 1898 at Bergen, Norway,” were written by the chairman of this commission, and contain information that may be of practical use to the fishermen of this State; hence their publication here: —

Observations on Fisheries and Fish Markets. — The following notes on British fisheries and the methods of marketing fish are based upon studies and observations made in Scotland and England. They are far

from exhaustive. It is not intended to make them so, but simply to invite attention to some salient features, the discussion of which at this time may prove helpful, in a suggestive way, to those interested in supplying our markets with fresh fish.

Aside from herring, nearly all the sea fish taken by British fishermen are marketed fresh, and whatever tends to improve the quality of the product and to make the supply nearly uniform at all times leads to greater appreciation of and reliance upon this kind of food and enhances the demand for it. It is scarcely necessary to add that success in commercial fishing depends on the creation of a demand for the products, the practical certainty of meeting with quick sales and getting remunerative prices. Whatever brings this develops prosperity, and the latter commands the services of the most skilful, courageous and enterprising men. It is my purpose briefly to point out a few things which seem to have brought about an unexampled period of prosperity in the British fisheries.

Existing conditions are doubtless due largely, if not exclusively, to improvements in putting fresh fish upon the market. While in Great Britain I had a purpose in eating fish, generally to test their quality. I ate them at hotels, in plain eating houses, at restaurants, at boarding houses and in private families, and invariably found them in the best condition, with their natural flavors well preserved. I visited the fish markets at the fishing towns and in London, and noted the condition in which the fish are marketed by the wholesale trade, and the retail markets of the metropolis were also subjects of observation. In all cases the result was satisfactory, and the condition of the products, as sent to the retailer or delivered to the consumer, suggested the reason why the demand for fish exists; for it is evident that the sale of fish in the best possible condition creates a market for more, while every fish sold which gives dissatisfaction to the consumer decreases the demand for such food. This being conceded, the next thing to consider is the question of how present conditions in the British fish trade have been brought about.

Unquestionably the adoption of steam fishing vessels has been the prime factor that has made present conditions possible. It is true much was done by steam carriers to improve conditions before the advent of steam trawlers and steam liners. But, while the former are still performing a valuable service in attending upon the fleets of sailing smacks and daily bringing their catch to market, the frequent independent trips of the steam liner and steam trawler have revolutionized the trade, and made possible what was before impracticable.

A rivalry also seems to exist between fishing ports regarding the quality of fish put upon the market, and this tends to good results,

for the recognition of the fact that the trade of a place depends upon the reputation established for its goods impels all to use the utmost care and good judgment.

Of course when steamers — either trawlers or liners — make trips to distant fishing grounds, like those lying off the west coast of Norway, the Faroes and Iceland, the fish must of necessity be on board several days before they are landed; and the fish caught are not in such fine condition as when they can be marketed within a day or so from the time when they are caught, as is most commonly the case. It is, however, to be said that many, if not most, of the line steamers which make these distant cruises have wells in which the fish first taken can be kept alive. The last of the catch can then be iced, and will thus be comparatively new and in good condition when the vessel arrives, for the passage is seldom longer than three days. The trawled fish caught at the same time and place must of necessity be in a less desirable condition, for all are iced. Nevertheless, it is fair to state that vessels resorting to these distant grounds usually fish a very short time, consequently it rarely happens that their fares are in bad order when discharged. It is also true that the great bulk of the catch is taken comparatively near home, and the fish are marketed in the best possible manner.

Methods of Trawling, etc. — In recent years the beam trawl has been entirely superseded by the otter trawl on steamers. The otter trawl covers more ground, fishes better than the beam trawl, and is easy to handle. The ordinary width of the mouth is 64 feet, which is 10 feet wider than the largest beam trawl. The otters are 8 feet long and 3 feet 6 inches to 4 feet high. There is little change in the construction of the trawl net, except in the size. The wings, belly, square, etc., are longer, but the “cod-end” is the same as in the beam trawl. The otter trawl is well adapted to the capture of haddock and other free-swimming species, which make up the bulk of a trawler’s catch.

When fishing, a trawl is ordinarily towed about three hours; but, while this is perhaps the time most commonly adopted, there is considerable variation, due to the character of the ground, the known or supposed plentifulness of fish, etc. If a good catch is made, the trawl on the opposite side of the steamer is shot as soon as one is up, and it is towed over the same ground, unless the strength and trend of the current prevents. If, however, the result is unsatisfactory, the vessel generally steams away to a new position.

Trawled fish are usually gutted, and packed in ice on shelves in the pens of the fish room. They are put in boxes for landing. If conditions permit, the fish are boxed between five and eight o’clock on the morning of the arrival, and put on the pier or “pontoon” for

sale. With few exceptions, fish from trawlers are sold in boxes at Grimsby; but the line-caught fish, such as cod, halibut, etc., are laid out in rows, according to sizes and condition, and sold by the score, if there is a considerable quantity in a lot, otherwise, they are disposed of by the piece, pair or lot. The sales begin at eight o'clock A. M., and continue until all fish are disposed of. Everything is sold by auction. While the sales are still going on the fish sold are rapidly packed into boxes, barrels or other receptacles, and are promptly dispatched on swift trains to their destinations in various parts of the country.

Long-line Fishing. — The steam long-line fishery, however, seems to demand more attention here than trawling, for the reason that there is small probability of the latter immediately becoming a prominent feature of our fisheries, while the long-line or trawl-line fishery is already well established in the United States, although it is prosecuted from sailing vessels and by an entirely different method from that in vogue in Great Britain.

The steam liner "Phalarope," one of the fleet of Mr. T. F. Robertson Carr of Aberdeen, may be taken as a fair example of the first-class long-line steamers fishing from that port, although she is not so large and expensive as many of the liners from Grimsby, some of which are 120 feet long or more between perpendiculars, or about 130 feet over all. The "Phalarope" is 103 feet long. However, her equipment, the arrangement for the care of fish and the methods of fishing prosecuted on her may be taken as typical, though of course there may be some local differences of outfit, and the exigencies of fishing, or individual opinions of different skippers, may cause some variation at times in fishing.

Fishing Gear. — The lines used by the "Phalarope" are rigged for the capture of halibut, cod, ling and various other species of ground fish which can be taken with hooks. The ground lines are hemp. They weigh $3\frac{1}{2}$ pounds to the "cut" of 60 fathoms; the gangings or snoods weigh $1\frac{1}{4}$ pounds to the "cut." No. 12 Kirby-bend hooks are used. The gangings are 2 fathoms long, and approximately 4 fathoms apart on the ground line. The lines are rigged in "strings" of 60 fathoms each, and 8 of these, with a total of 130 hooks, constitute a "basket" of line. The lines are coiled in large willow baskets, which have cork around one side of the rim for the hooks to stick into. The "Phalarope" carries 40 of these baskets of line, with 5,200 hooks, and an aggregate length of 20,200 fathoms, or considerably more than 20 miles of line. The buoy lines do not differ materially from those of the New England fishermen. Hard-wood conical buoys are used. These have a long wooden staff

going vertically through the middle, and usually fitted to receive a lantern at the top.

The "hook iron" used for disgorging hooks from fish, or killing them, is made of three-quarter-inch iron, 13 to 16 inches long, with a knob at one end, and with the opposite end flattened and split so as to fit over the bend of a hook.

For a part of each year herring nets are carried for catching bait. The season during which bait is taken by the line steamers is usually from March 10 to September 15. Sometimes herring nets are carried later in the season, and occasionally even to November, if the steamers are fishing on southern grounds, where herring are often found late in the year. In winter squid and herring are purchased for bait.

A line steamer will carry about twenty-five herring nets in summer. In Scotland sheepskin buoys are used for these, since they are very durable and tight, as well as cheap. They cost only about 60 cents each, and last from three to four years. A yellow sheepskin net-float looks like a pumpkin. It is 12 to 15 inches in diameter; is first tanned and then tarred on the inside; the outside is usually coated with ocher. It has a wooden stock or staff in it, around the neck of which the skin is gathered and lashed so as to exclude water. There is a hole in the end of the staff for the buoy line to fasten into.

The stout warp which holds the nets to the vessel, when they are set, has a section of chain next the nets. This warp is called a "bush-rope" in Scotland.

Methods of Fishing. — The method of fishing is as follows: The lines are shot from the vessel and hauled on board of her. Boats are never used for setting or hauling the lines. It is very severe weather when a steamer fails to set or haul her gear. Often the lines are shot, says Captain Forbes of the "Phalarope," when everything is afloat aft, where the men must stand to put them out. It is not uncommon for the deck to be full of water and baskets of trawl-line floating about, and it is often difficult in "coarse weather" for the men to keep their feet as the vessel rolls rails under or the short combing seas tumble on board.

When the lines are being shot, the vessel is kept at a speed of about $6\frac{1}{2}$ knots and headed across the current, if the conditions are at all favorable for such a course. In some instances, however, when it is desirable to keep on a small patch of ground, the course may be changed, and less attention is given to the set of the tide. The object in placing the lines at right angles to the current is so that the snoods to which the hooks are bent will lay out clear of the ground line.

The lines are baited as they are set; three men are usually engaged in baiting the hooks, and one man "runs them out." A whole her-

ring is put on each hook, particularly when fishing on soft bottom, and always when there is sufficient bait. Occasionally, when bait is scarce and the gear is put out on comparatively hard bottom, the herring are cut in two and a section is put on each hook. A whole herring is preferred for bait, especially on soft bottom, because of the abundance of the slime eel (*Mixine glutinosa*), which would soon strip the hooks if the herring was cut, and leave small chance for the capture of cod, halibut or other useful species. In baiting, the hook is passed through one eye of the herring and out through the back.

To shoot a long line, the buoy is first thrown over and the buoy line run out; then comes the anchor, to which the last end of the buoy line and the first end of the ground line are bent. The hooks are then baited and "run out," as already stated. Before one basket of line is out, an end of the second basket is bent on, and thus the work proceeds until the whole string of gear is in the water, when the last anchor, buoy line and buoy follow, and the ground line with its many baited hooks sinks to the bottom. No buoys or anchors are used beside those at the ends, except when a shot is made just before the steamer is going to market, and when it is important to have the line sink to the bottom as soon as practicable, so that it may have more time to fish. Then a piece of metal, usually weighing 5 to 10 pounds, is bent to the ground line about three baskets from the last end thrown out. After the line is out the steamer lies by the last buoy, keeping close to it, so that it may not be lost sight of. There is a lantern on the top of the staff, which enables the fishermen to keep track of the buoy during the night, and strict orders are given those on watch to keep the vessel in position. Indeed, this lying by the "dan," as the buoy is called, is a matter of the greatest importance to all, for the success of the trip, as well as the value of the gear, depends upon always being within sight of the light on the buoy staff. It is customary to lie by for about three hours. During this time a vessel usually steams against the current from one-half mile to two miles, according to the condition of the weather, when she stops and drifts back until she approaches close to the "dan," or passes by it, when she again heads the tide and gets into position. This is repeated until the time arrives to begin hauling the gear.

In the mean time, those not on watch are sleeping. It is important to utilize every available minute for rest, for the men are compelled when at sea to be actively engaged in arduous work, even when the conditions are very severe, during the greater part of the twenty-four hours.

The best time of the day for setting long lines for cod varies with the seasons. In autumn more fish can be caught if the lines are shot

in the evening, while in spring better results are obtained by putting them out late in the night or in the early morning. The lines are hauled by night as well as by day, and under nearly all conditions of weather. In the fall and all through the winter fishing is prosecuted only at night, for day fishing would be unprofitable. Therefore, as stated, the lines are shot in the evening, and hauling begins some three hours later. In spring and summer day fishing is most successful.

The entire complement of gear is rarely set in winter. The quantity used depends largely on the condition of the weather, but it is seldom that more than 25 or 30 baskets of line are shot at a time, since at that season it is deemed preferable to use a moderate quantity of gear and thus have a better chance of getting early to market; for in winter a steamer may market her catch three times a week, and exceptionally four times, while in summer, when she is fishing on more distant grounds, she may be able to make only one trip a week.

In summer halibut constitute the most important part of the catch of steam liners from Aberdeen, but in winter skates are in demand and have been sold at good prices. Occasionally large financial results have been obtained by a vessel making exceptionally good catches of skates.

Care of the Fish. — Ice is used both in winter and summer for packing the fish on board the steamers, and this is invariably ground fine before being taken on board, — a custom practised in all parts of Great Britain where block ice is not carried on the vessels. About two tons of ice is usually sufficient for a winter trip; but the Aberdeen liners carry double that quantity in summer, and the vessels going on longer trips to distant grounds take a relatively larger amount of ice. The ice is stowed in a section of the vessel's hold devoted specially to that purpose, and called an "ice pound." This is usually forward of the fish room. A door leads from the ice room to the fish room, for the convenience of the men in getting the ice, which, being all ready, can be promptly used. The fish room is subdivided into pens or bins, like the ice house of a New England market schooner, and these have sliding adjustable planks in front, so that they can be closed up gradually from below as they are filled with fish. They are also fitted with plank shelves or horizontal platforms, eight inches apart, upon which the fish are iced. Thus, after the bottom tier in the pen is stowed, a layer of fine ice is put on the shelf next above, and the fish are laid on the ice, with ice between them, but no ice is put on top of them, except when the vessel is far from market, and it is not customary to lay one tier of fish upon another. Every possible effort is made to prevent the fish from having any appearance of being jammed, consequently when landed

they look as if they had just been taken from the water. The aim of the Aberdeen fishermen has been to put their catch on the market in the best possible condition, and within as short a time as practicable after they are caught.

Marketing the Catch. — In winter the lines are usually hauled about three o'clock in the morning, and by ten or twelve o'clock of the same day the steamer is in port and the catch is landed. In summer, when the vessels are working on more distant grounds, usually off the coast of Norway, it takes a longer time to reach the home market; but even then it is seldom that fish are more than twenty-four to thirty-six hours old when they are landed.

The fish are sold at Aberdeen, or elsewhere in Great Britain, at auction. Each vessel owner usually has a fish salesman to attend to the disposition of the catch of his steamers. There are also a number of men who assist in landing the catch and arranging the fish for sale, by placing them on the market dock in tiers or rows, according to grade, or in any other way required by the trade. As a rule, halibut are sold singly or by the pair; cod and ling are generally sold singly in summer, or by the score, half-score or quarter-score in winter; perhaps more are sold in lots of five than otherwise. The sale of skates varies with the supply and demand. One visiting the market can generally tell what the demand is, if he notes how skates are being sold, — whether by the score or smaller lots, — for when the price is high they usually sell by fives or tens.

The fish auction at Aberdeen (as indeed in most of the British markets) is interesting and instructive, but more or less puzzling to a stranger, for one unaccustomed to it is generally at a loss to know how the bid of a buyer is indicated, for it is rarely announced in words. But the alert and trained salesman is on the lookout for a wink or a nod, or other signs, which the initiated know pass for bids, while the novice is surprised to hear the call of bids by the auctioneer, when he is unable to determine what has been offered, or by whom, even though he watches closely. It seems to be part of the buyers' plans to conceal their identity with bids, so far as practicable; and I was told that a pull on the salesman's coat, or similar hidden signal, is often made to indicate a bid. It is all, however, intelligible to those accustomed to the trade, and the business is carried on very rapidly and much more systematically than one would expect who had never seen anything of the kind.

After the steamers reach market the gear is usually cleaned of old bait and made ready for use before they sail again. This process of preparing the apparatus is called "ridding" the lines.

Unless repairs are needed, a steam liner rarely fails to go to sea again as soon as possible after landing her catch; for, whatever the

condition of the weather, rain or shine, blow high or low, she is off for the fishing grounds as soon as the fish are out, and coal, ice and necessary stores are on board. The storm that detains a fishing steamer in port must be exceptionally severe; for it is in bad weather, when sailing craft cannot go to sea, that the steam vessel reaps her richest harvest, since prices then are high. The fearless and hardy fishermen literally defy the elements in their sturdy steel and iron boats, and reck little of being half submerged much of the time. Thus, whatever the conditions, it is a warfare with nature, for it is "drive, drive, out and in." Captain Forbes told me that he had seen the high bow of the "Phalarope" go under a green sea when he was pushing her hard for market, and the water would go rushing like a cataract past the pilot house and out over the stern and rails. But there was never a thought of decreasing the speed, for "all is iron," and the contents of the fish room must be on the pontoon at Aberdeen next morning, whatever the risk or discomfort. The official zeal, courage and endurance of these sea toilers are only equalled by their supreme confidence in the vessels they sail on; and this confidence can scarcely be wondered at, for these fishing boats rarely meet with serious disaster at sea, and actually pursue their hazardous work when much larger vessels are lost at sea or on the coast, or are compelled to seek shelter in harbor.

Lay and Wages. — On the Aberdeen steam liners, settlements are made weekly with the crew. The method of payment is a mixed share and wage system. The engineer, fireman and cook are paid weekly wages and receive no share. The usual wages are £2 per week to the engineer, £1.6 to £1.10 to the fireman, and £1 to £1.5 to the cook. The cook, however, receives larger pay in summer, when nets are carried for catching bait. All others are on shares. The system of settlement is as follows: The harbor and dock dues, commission to salesman, coal, ice, stores and cook's wages are deducted from the gross stock. The net stock is then divided equally, one-half going to the vessel and the other to the fishermen, or those who receive no wages. The crew's half is equally divided among the men, the captain included, who receives no more than any other sharesman; sometimes, however, he receives a small bonus from the owners, particularly if he is a "lucky skipper," but this seldom exceeds £15, or about \$75 per annum, and is usually about £5. Occasionally a master may be a share holder in a fishing steamer, but this is not common on the liners. From the vessel's half of the proceeds the engineer and fireman are paid; also a bonus of 1s. to the pound on the gross stock, if it exceeds £40 per week. This is called the "stoker." The balance is the steamer's earnings.

The above method of settlement is limited to the season when bait

is caught at sea by a steamer's crew. When bait is purchased it is deducted from the gross stock, and at that season the engineer's and fireman's wages also are taken from the gross earnings. Thus, in winter, the sharesmen not only pay half the expense for bait, but also half of the wages for hired men.*

Pickle Pump. — Among the most useful devices exhibited by Russia was a hand pump, with hose, etc., attached, used for forcing pickle into barrels filled with fish. . . . It consists of an ordinary form of force pump, mounted on a wooden horse or stand. It has a wooden lever handle, and is provided with a corrugated rubber suction hose underneath, with a strainer at its lower end. It has a canvas discharge hose, fitted at the end with a metal spout for entering a hole in the head or side of a cask, and with a simple form of stop-cock to shut off the flow of brine when the barrel is full. Fish are packed dry, as in this country, and are pressed tightly into the casks; the barrels are then headed, and the pickle is subsequently pumped into them. This seems to be a decided improvement on the system of pickling fish in barrels in the United States, where as a rule, only a simple funnel is used, into which the brine is poured until a cask is supposed to be full. It is far within the possibilities that sufficient pickle is not always put on by the method referred to, and much of the loss of pickled fish, which is now no small factor in the American fish trade, doubtless might be prevented by the use of a pump for forcing brine into the barrels.† . . .

GAME.

The Preservation of Game. — Those who have given much thought to the subject realize the great importance of protecting our game birds and certain game mammals, also the song and insectivorous birds which are found within the limits of this Commonwealth. If there were no other reason for the preservation of these than the fact that they are necessary as a means for the healthful recreation that is found in hunting, there would be ample justification for the utmost effort to continue certain species for the benefit of the present generation, and to take such measures as are necessary to transmit them in undiminished numbers to generations yet to come. It has been well said that “if those who are to follow us are to know and enjoy the game bird or wild songster of to-day, if the

* Report of the United States Commissioner to the International Fisheries Exhibition of 1898 at Bergen, Norway, pp. 430-439. Washington, 1901.

† *Ibid.*, pp. 305, 306.

farmer is to have the help of all these in the destruction of injurious worms and insects, if the country is not to be transformed as far as possible into a desert, by taking away of these forms of beautiful color and sweet music, some positive position must be taken and maintained for their protection.”*

It is gratifying that the necessity for taking a “positive position” in the matter of game protection has been so fully recognized by the General Court of Massachusetts in recent years, even if it must be conceded that some of the wise laws which have been enacted may need supplementary action to make them as completely effective as was intended.

There is undoubtedly a very utilitarian side to the protection of game in this Commonwealth. With the passage of years the New England States have become increasingly the favorite resorts in summer and autumn of those of ample means, who find an abundance of game one of the greatest attractions which nature offers. It is well known to be an inducement to some, more powerful than any other; hence millions of dollars are annually spent by sportsmen in a neighboring State in the enjoyment of hunting, and no insignificant portion of those millions is contributed by citizens of this State. If, then, it is possible by judicious protection to improve our game conditions, so that sportsmen from less favored States and from this Commonwealth shall be attracted thereby, it is evident that positive benefit will result, inasmuch as considerable sums of money will be retained within our own borders which otherwise might go elsewhere. It certainly seems wise to utilize as fully as possible the large areas of wild land and covers that still remain in the State, and to that extent hold out an inducement for those with means to build summer homes in many localities which may be largely benefited thereby.

But there is another side to this question. While the well-to-do may experience no special deprivation from a scarcity of game in this State, because they have both time and money to seek desirable conditions in other localities, it must be conceded that a reasonable conservation of game by adequate protection, stocking the covers, etc., is a matter of much moment to thousands who may derive both pleasure and physical benefit

* Circular of J. H. Worden of Pennsylvania.

from hunting, but may not be able to expend the time and money required for a trip to some other State or to Canada. It is therefore highly desirable that every reasonable effort should be made to preserve and increase the game in Massachusetts, and the benefit to be derived therefrom seems to warrant any reasonable outlay which may be made for such a purpose.

Referring to these questions, the Boston "Globe" of Jan. 24, 1901, makes the following statements: "Generous encouragement from the Legislature in the way of a sufficient appropriation to conduct experiments and to keep in active service a corps of game wardens is all that is necessary to retain within the State boundaries a supply of game in abundance sufficient to warrant good shooting. There is no good reason why shot-gun men should be forced by scarcity of game to go to other States for their field sports. What the privilege of hunting means to men whose business confines them to workshops, manufactories and counting rooms cannot be expressed in words or figures. The desire to hunt is almost universal, and probably no other form of recreation is so healthful or so helpful to jaded nerves. Some have the time and means to visit other sections to enjoy the privilege of hunting, but a larger number cannot afford this, even though they may most need the relaxation from their ordinary duties which it brings. It is to the advantage of the general public, and consequently beneficial to the State, that every reasonable measure should be taken to promote an increase of game."

But, even if the claim made by some, that hunting is a "fad," be granted, and its great advantage as a recuperative recreation be ignored, there is still an imperative necessity that wise protective laws should be enacted, and that they should be enforced with vigor and determination. This may be more fully appreciated when it is known that science has declared that "this world of ours would not be inhabitable by men in fifty years after its bird life had been taken from it." It is only necessary to refer to statements made by E. H. Forbush, ornithologist of the State Board of Agriculture, to be able to comprehend this, and to realize the importance of the work that is continuously carried on by birds during certain months of the year. Few appreciate how much humanity is indebted

to birds, but there can no longer be excuse for neglecting them.

Effect of Recent Laws. — The laws relating to shore, marsh and beach birds (Acts of 1901, chapter 178), to squirrels, hares or rabbits (Acts of 1901, chapter 102), to snaring partridges, hares and rabbits (Acts of 1901, chapter 141), and to shooting in Boston harbor (Acts of 1901, chapter 174), have all been so recently enacted that it is too soon to speak with precision and in detail of their effect. It can, however, be said in general terms that their effect has been very beneficial. The full protection to the passenger pigeon, the small gulls and the terns is most desirable, and may be expected to lead to gratifying results. The change in the opening of the hunting season for squirrels, hares and rabbits, so that it corresponds with the beginning of the open season for other game, is most commendable; while the same can be said of the change in the snaring law, whereby snaring on one's own land is legal only during the months of October and November.

But it is possible to judge with some accuracy of the effect of the game law which prohibits the sale of partridge and woodcock (Acts of 1900, chapter 379), for its beneficial results are already observable to a very pronounced degree in nearly all sections of the State, notwithstanding it has been in force so short a time. There can be no doubt that the increase in ruffed grouse, concerning which there is a large mass of evidence at hand, is directly attributable to this measure and the active enforcement of the game laws. The outlook for the woodcock also seems somewhat improved, even to the extent that it is reported breeding in this State, although it is well known that its appearance is generally as a migrant.

While the act referred to does not prevent the sale of quail from cold storage between the 1st of December and the 1st of May, if legally taken in this Commonwealth, the nearly practical elimination of the pot hunter, by the restrictions on the sale of partridge and woodcock, has unquestionably proved a protection to quail, and to that extent has led to their increase. It is the universal testimony that quail have not been so abundant in many years as during that covered by this report.

The following extracts from letters and reports of deputy commissioners and from the press will perhaps suffice to show

the effect of the legislation referred to, even though the statements quoted are only a few of the many that are available :—

Deputy William N. Prentiss, writing from Milford, September 27, makes the following statements regarding game in that vicinity : “ Quail are very plenty, in fact I never saw as many during the spring and summer ; while at the present time there is a covey in every hedge-row, and in riding a distance of less than a mile from my house, yesterday, I flushed three [coveys] of from seven to a dozen. There are more partridge than last year, judging from what I have seen while in the woods at work, and looking for hunters. There is no doubt the shortened open season, with the markets closed to the hunters, has helped these birds more than anything which has been done for a long time. The woodcock here is only a traveler, there being scarcely any except flight birds. Gray squirrels are scarce, the large timber being nearly all cut off, although a few are to be found in some localities. Rabbits are plenty.”

Deputy John F. Luman of Palmer, writing on October 1, makes the following statements relating to game, and success of hunters on the first day of the open season : “ I write to inform you of the success of the first open day on game in this section, and also to let you know that some of the sportsmen have changed their minds considerably from last year when the law was made tight against the sale of birds. In the section of woods I covered to-day I met no less than seven hunters, and all reported excellent luck. I saw their game, and each had partridge, quail and gray squirrel. I had a few minutes' talk with each of them, and some of those I met one year ago were bitter against existing laws, and said many things about the commissioners and your humble servant. To-day they acknowledged that they were wrong in their opinion, and said that the commissioners were doing their duty nobly ; they were well pleased with work already done, and hoped that the good work would continue. They all said that they had better luck than for five years past, and said that all kinds of game were plentiful this season. I was in Palmer to-night when two hunters returned, and each had his game bag filled with game. They said that this section was alive with birds this year, and both said it was due to the commissioners and their good work in looking after game. They predicted that if game was

closely protected in the next two years, as in the past year, there would be an abundance of sport for all."

Referring to small game at Ludlow Centre, Mr. Luman made the following remarks in his report for the week ending June 23: "Mr. Gates says that game is very plentiful. Partridge, quail and rabbits are very numerous; quail run through his door-yard frequently."

Deputy A. D. Putnam of Spencer, writing on November 10, made the following statement: "I have been out hunting quite a number of times, and the smallest number of partridge I have flushed was seventeen, which was one afternoon. All the other days I have found from twenty to thirty, and it is a fact that we have more partridge in Worcester County than we had last year, regardless of what others may say. I have hunted partridge for twenty years in Worcester County, and I ought to know. In regard to quail, there never were so many in this county as there are to-day."

Deputy Otis Thayer, writing from Lenox, says: "As the season advances, I find a great many partridge, and many broods are reported. . . . The members of the club feel encouraged, and they say if things continue for a year or two there will be birds enough. The winters are too severe for quail here, and there are none."

Deputy Smith of Pittsfield reports, on October 6: "The season opens on birds very good. Some of the boys have made good bags. J. H. Wood and son caught twelve the first day. One party at New Ashford captured seventeen."

The North Adams "Transcript" of November 8 quotes a Pittsfield news item as saying: "The hunters report good luck on partridge this fall, and some of them have seen pheasants in the covers." The pheasants seen are reported to have been "promising, as they are full grown."

Deputy A. M. Nichols was in the south-western part of the State when the hunting season opened. He states: "The sportsmen throughout that section report lots of birds and squirrels." Writing on November 7, he made the following statements: "A Mr. Taylor, a business man of Springfield, went out to Greenwich yesterday, hunting, and returned to Springfield last night. I heard him tell Mr. Nelson that he kept count of the partridge that he scared up during the day,

and that he flushed up 40 birds in all. Dr. Herrick also said that he never saw so many woodcock and quail as there are this fall." He also says: "Mr. Joseph Wood of Pittsfield states that he has had better bird shooting this fall than he has had in years. He also reports woodcock very plenty."

A Pittsfield dispatch in the Springfield "Republican" of November 13 says: "Joseph D. Shearer holds the local record for partridge and woodcock shooting this season having bagged twenty-five of the latter and fifty of the former birds to date."

The Worcester "Telegram" of October 23 has the following: "Hudson hunters say there is more game in this vicinity [Hudson] this year than there has been before for ten years."

Mr. Luman reported that all the hunters he saw at Wilbraham had met with good success, and said there was an abundance of game.

Deputy E. C. Hall of Ashville, writing under date of July 27, makes the following reference to the effect of the game law of 1900: "The law, stopping the selling of ruffed grouse, came just in time, and we will have a very good lot of birds this fall, and they will surely increase year by year, as nine-tenths of the birds [formerly] killed in this section were sold. That has been entirely stopped and birds will increase rapidly. In two years we will not have to go to the north woods to find good grouse and deer shooting."

On July 9, 1901, Deputy W. J. Cross of Becket wrote as follows: "Young partridge are scarce, but few being seen. Although there was a large stock wintered over, there was a great deal of rain when they were hatching, and I think they were killed off. Woodcock were very plenty in the spring, and nested here pretty freely."

Partridge appear to have been plentiful in the vicinity of Fitchburg and Leominster. The following item from the latter place, on October 16, was widely published: "Charles Marine was out hunting, and while driving along in his buggy two partridges flew up, and he blazed away, killing the two birds with the first shot. He drove along a little farther, and it seemed as if the birds came up just for the purpose of letting him try his skill, as he shot a third bird from his wagon seat."

The Taunton "Gazette" of October 25, 1901, says: "Local

hunters are finding a lot of game this year in the vicinity of Taunton, — if they know where to go. . . . Another thing that is keeping game plentiful about here is the law against gunning for the market. . . . The only place where there is any abuse of this law to any extent is near the Rhode Island line, where market hunters get out and shoot, and sell their game in the other State.”

Deputy George W. Goldsmith, writing from Beverly, on July 26, made the following statements regarding game birds in that locality: “Quail are doing finely in this vicinity. There are more birds this year than for five years back. I liberated two dozen in April, which are doing well. I have seen four or five flocks of little ones within three hundred yards of my cottage. . . . I notice in my neighborhood that the gunners respect the law very well.”

Deputy Otis Foster, writing from Pembroke, under date of June 26, says: “Song birds and quail are very plenty, more so than for many years. There are three pairs of quails within fifty rods of my house. I see them almost every day. . . . There will be good fishing this fall.”

Capt. W. C. Dunham, writing from Nantucket, on September 21, says: “Quail are quite plenty.”

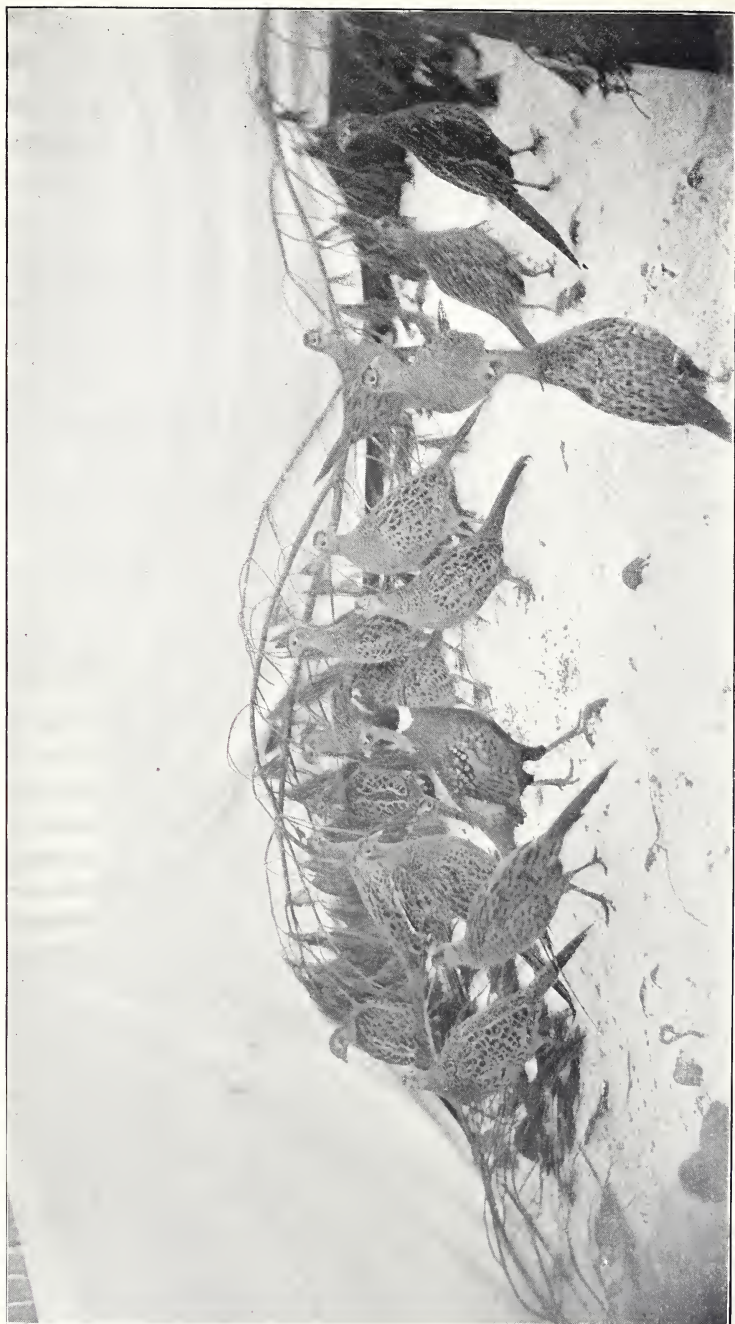
The following press items at the close of the hunting season are interesting, to the extent that they give the result of the fall shooting in the western and central sections of the State, and perhaps make it easier to fully comprehend the effect of the law: —

The Pittsfield “Eagle” of Nov. 29, 1901, says: “The close season on partridge and quail goes into effect Sunday. This season has been one of the best bird seasons in years, despite the fact that during the period of incubation the wet weather which prevailed doubtless prevented many of the eggs from hatching. Birds have been and are now very plenty, and the three years’ prohibition from shooting for the markets has proved to be a most efficacious method to restock with birds the covers in this section of the State at least.”

The Worcester “Telegram” of Dec. 1, 1901, has the following: “There isn’t in evidence a sportsman in Worcester but who is heartily in favor of the shorter season clause of the law. Men who pursue the sport with dog and gun are practically unanimous

in indorsement of the new law, which has now been in force two years. There are scores of shooters who believe that the effects of the curtailing of the season are already apparent in more partridges and in a greater abundance of quail. If there is any one who wants to return to the old system, under which birds were slaughtered from September 15 until January 1, he has not appeared in evidence, or has not the hardihood to express himself. The fact that there have been more birds this year than last, in spite of a marked increase in hunting, indicates that the law is already doing good work. Although the abundance of birds must to some extent be credited to an excellent breeding season, still, there is little doubt that the increased parent stock, the result of barring the slaughter of last December, was a very potent factor in increasing the supply. When two men can go only a few miles from Worcester, a city of one hundred and twenty-five thousand inhabitants, and bag twenty-seven birds in a day, no one can argue that game birds are on the ragged edge of extinction. Two of Worcester's fastest men killed eighteen quail and nine partridges in a single day last week. Four men a short time ago bagged thirty-two birds, eighteen partridges and fourteen quail, in a single day, and it is safe to assume the quartet started close to eighty birds during the day in the covers. Two Worcester men wound up the season Saturday by starting thirty birds, eighteen of which were killed. When these figures are quoted, it takes pretty strong arguments to convince good judges that game birds are disappearing from the map of Worcester county. . . . To be sure, the wise ones say, it is to be expected that birds will be cleaned from the covers on the very edge of the second largest city in Massachusetts. But the covers of Brookfield, Spencer, Sutton, Fiskdale, the Brookfields and Brimfield, and other surrounding towns, are doing business with the ruffed grouse in about the same old way. And an extension of the present law to cover another period of three years at its expiration next season, is believed by many to be all the protection needed to insure partridge shooting to children's children."

In his report for the week ending December 1 Deputy Luman says: "Saturday, the last day of the season, brought out a large number of hunters from Worcester and Springfield, and I saw some of them when they were returning. All reported



MONGOLIAN PHEASANTS.

good luck, and all said that the season was a record one for birds. They repeated over and over that it was due to the present law, prohibiting the sale of birds, and the strict enforcement of the law by the commissioners."

Sea and Shore Birds.—It is claimed, by those who have been in a position to know, that the opportunities for shooting sea birds have been exceptionally good during the season covered by this report. The special feature this year at Chatham, for instance, was that up to the middle of October at least there was a flight of birds every day, and consequent steady shooting; whereas in other autumns it is conceded that "there have been days of exceptional shooting which would more than equal any day this season, but on that one particular day the big bags had to be made, or not at all." As many as twelve to fifteen coots have been commonly killed in a morning by the local sportsman at North Chatham, and one hunter "bagged eight coot and six shelldrake." Fine bags of yellow-legs, peeps, grass birds, etc., were also obtained. Conditions more or less similar to those above described prevailed along the south shore and elsewhere where sea and shore birds are generally sought.

Pheasants.—Evidence of a gratifying increase of pheasants within the Commonwealth, and of their breeding successfully in a wild state, have been numerous and convincing. It is practicable to mention only a few of these, but the statements that follow demonstrate the capacity of the Mongolian pheasant not only to live in our climate but to multiply rapidly. The success of the hen pheasants in rearing large broods shows conclusively that in an effort of this kind the natural instincts of the mother bird excel the best achievements of man.

Mr. W. G. Pray of Topsfield wrote as follows regarding pheasants, on September 25: "Pheasants have bred well this season, and within a radius of twelve miles there are fifteen broods and from twelve to fifteen in a brood. . . . There are a number of broods in Topsfield, and the teamsters tell me that they start them in the road almost every day."

A gentleman who has watched with interest the work at Winchester informed Commissioner Brackett that he had found a pheasant's nest early in the season, in a secluded place near enough for him to keep it under observation. Twenty-one eggs

were laid in it, and these produced nineteen chicks, all of which were raised as long at least as the mother bird could keep them together. In another instance the commission was creditably informed of a young brood at or near Arlington that numbered fifteen.

The pheasant has done well on Nantucket. The "Enquirer and Mirror" of that town, in its issue of September 21, said: "The Mongolian pheasants, which were liberated in the vicinity of Pognoy several months ago, are multiplying rapidly, several large broods of young birds having been discovered this week."

At the other extremity of the State the outlook also seems encouraging.

Deputy Nichols, writing on September 29, states that he had been informed by a well-known sportsman at Turner's Falls that a man had seen two pheasants near that village a few days previous; also that Deputy Brockway of South Hadley had stated that a farmer living near where the pheasants were liberated last spring, in the last-mentioned town, saw an old bird and ten young ones a few days previous to the date of Mr. Nichols's letter.

Hon. I. M. Small of North Truro, in a letter dated Oct. 26, 1901, makes the following statement: "A beautiful cock pheasant was seen in the field between our house and the light-house last Tuesday, quite likely one of those which you put out here last spring."

Deer.—There are many evidences that deer are increasing in this State to a satisfactory degree, and that they are widely distributed. Occasionally one is killed by accident or design, but the persistency with which the deputies have investigated all complaints of deer being illegally killed, or killed in any manner, undoubtedly has had a tendency to prevent many, who otherwise might have hunted deer, from engaging in so hazardous an enterprise.

A herd of twenty-six deer was seen in April on the Massachusetts side of the Vermont line, according to Deputy Nichols; but from information at hand it appears that these deer were near the State boundary in the vicinity of Pownal, Vt., and consequently were liable to be in either State, as they moved back and forth to graze or to find shelter congenial to them. When last reported they were within this State.

The Pittsfield "Journal" of October 24 had the following in reference to deer in the northwestern part of the State: "Four deer have been seen in the vicinity of Williamstown in two days. Sunday two deer ran from the woods near the State line and trotted along the highway for a considerable distance, when they disappeared in the brush beside the road. Early Monday evening Motorman Pandle saw two fine deer near the home of Mr. Briggs, on the road to Blackinton. Mr. Pandle was running his car, when the deer jumped out upon the track and then bounded away."

As indicating the presence of deer in the northwestern part of the State, the following item from the North Adams "Transcript" of May 28, 1901, may be quoted: "The east-bound express which passes through here at 5.18 in the morning struck and killed a large deer just west of Blackinton to-day. The animal weighed about two hundred and fifty pounds, and is one of the largest that has been seen in this vicinity. Game Warden Nichols was notified, and took charge of the carcass, bringing it to the city." It is somewhat remarkable that a deer was struck by an electric car a few days earlier, not far from where the express train hit the one referred to.

Deputy W. J. Cross of Becket stated, on July 9, 1901: "Deer are seen every few days, all the way from one to five."

Referring to Ludlow Centre, in his report for the week ending June 23, Deputy John F. Luman makes the following statement: "Deer are very abundant here. They are seen every day by the farmers, one of whom told me that his wife tried to drive one into the barnyard, thinking it was one of the young heifers. There were a doe and her young feeding close to the barn. The farmer's dog chased both and was gaining on the young one, when the mother turned upon the dog and nearly killed him."

In its issue of October 23 the Worcester "Telegram" published the following despatch from its Palmer correspondent: "Three handsome young deer were seen in the woods along the track of the Central Vermont Railroad this morning by Timothy Davis, who was walking across the tracks to his pasture. The deer were feeding along the track, and were within one hundred feet of him when discovered. They did not seem to pay any attention to him, and appeared very tame. Two

others were seen by W. W. Thomas near West Ware, and Edgar Squiers saw two more on Moulton Hill, Monson. Judging from the numerous deer that have been seen in this section of the country this fall, it will not be many years before persons will not have to go to Maine to hunt them. No less than twenty-five deer have been reported as seen in this locality so far this fall."

Deputy George W. Chaney of Dunstable reports: "Deer are quite numerous in the spring and summer months; in fact, two or three of them have frequented my mowing fields day and night for the last two years, and . . . three, four and five have been seen by different persons in the highways at one time by several persons. My father has lived in this section for eighty-one years, and never saw anything like it before."

Complaints of the abundance of deer have been received from farmers, who claim that their growing crops have been injured by the animals. Other evidences of the increase of deer are too numerous to be quoted here, and they are sufficient to indicate that the protection given by the State has resulted satisfactorily; it has demonstrated the feasibility of keeping this beautiful wild animal within our State borders, and if the chasing of it by dogs can be prevented, there is no doubt that we can ultimately have deer to hunt in Massachusetts for a few days at least in each year.

It will thus be seen that the game conditions in the State indicate much advancement, and, with some hoped-for improvement in the protective laws and adequate means for their enforcement, there is reason for anticipating much in the future which until now seemed almost hopeless. A more complete understanding of the game situation will be obtained by reading the annual reports of the deputies, which are published in the appendix, and are supplementary to the statements made in the foregoing paragraphs.

BREEDING GAME BIRDS AND ANIMALS.

Winchester. — The breeding of game birds and animals at the State experiment station at Winchester has been carried on as usual, but, for reasons specified in the following paragraphs, the success with birds came short of expectation.

Pheasants. — The past season has been very unfavorable



BELGIAN HARE PENS AND PHEASANT COOPS AT WINCHESTER.

for the artificial rearing of all kinds of birds. Owing to the warm weather of the previous fall, they molted late, and consequently had not recovered their usual vitality when winter overtook them. The spring was cold and wet, extending into June. Many of the eggs were not fertile, and many more lacked the vitality necessary for a continued life. The consequence was that the anticipations for a large increase in the number of pheasants at the station were not realized.

The Mongolian pheasant is a wild, restless bird, requiring a great deal of exercise and the widest range possible. By frequent experiments it has been found best to give the chicks, after the first five or six days, the liberty of the large enclosure. They grow faster and in every way are superior to those raised in small coops. They not only retain their instinct of self-preservation to a large extent, but learn to forage for themselves, and do not depend entirely on the hand of the superintendent for their food. As they grow older they will often fly over the fence into the adjoining woods and fields, but, if not caught by their enemies, will invariably return to the enclosure, and in the fall can be easily trapped for distribution or for confinement in winter quarters.

The experiments with the new food were continued this year. This is a granulated food, in appearance closely resembling that which is sold under the name of "grape-nuts." For feeding young birds, a lightly cooked custard without sugar was thickened with the granulated food until sufficiently dry to crumble. Beginning when they were five or six days old, about one hundred pheasant chicks were fed once a day on this food and twice on maggots. As pheasants are not naturally grain feeders, and as young chicks are reluctant to feed on anything that is not alive, it was necessary to teach them to eat the food by mixing maggots with it. They soon acquired a taste for it, and the effect was apparent, as they made rapid growth, began molting early, and when trapped in the fall were larger than any of the same age heretofore raised at the station.

As these birds had their liberty in the large enclosure, and were not always under close observation, it was thought advisable to try the new food with birds in confinement. Accordingly, thirty chicks were placed in the brooder house

with small yards, and fed in the same way; but unfortunately, when three or four weeks old, a herd of migratory rats dug into the brooder house, and in one night killed twenty-six. The remaining four were more or less demoralized, yet one of them, a male, has made a phenomenal growth.

Until they are fully feathered out, young pheasants should not be fed on farinaceous food unless it is thoroughly cooked. In a state of nature the mother bird, although she may be a seed or grain feeder, never makes the mistake of feeding her young on such food.

The dissection of young birds shows that the gizzard, which is the most important organ in their digestive system, is not sufficiently developed to enable it to take care of hard food; and this condition holds good, more or less, in the natural evolution of all bird life; consequently, the breeder who adheres most closely to nature will always obtain the best results.

Having partially failed in the experiment with the new food in consequence of the raid of rats, the following experiments were made with partridge-cochin and bantam chickens, both of which are considered rather difficult to raise:—

Lot No. 1: Eighteen cochins and fourteen bantams, hatched May 20, were put in a brooder and fed with food usually given to chickens; only twelve survived.

Lot No. 2: Twenty-six Pekin bantams, hatched July 7, were placed in a brooder and fed on the granulated food; one was deformed, and was killed; twenty-five lived.

Lot No. 3: Thirty-five bantams and thirteen cochins, hatched July 22, also fed on granulated food; forty lived.

The food for the last two lots was carefully weighed and measured, and the cost estimated at about thirty cents per week for seventy birds. The growth and feathering was remarkably fine and rapid. Lots 1 and 2 were weak birds, many had to be helped out of the shell. Lots 2 and 3 were fed for the first four weeks on granulated food (minus the custard), at which time they were fairly feathered, and the food was changed to one less concentrated. Had they been fed on ordinary food in the beginning, probably more than one-half would have died, as was the case with No. 1. In no sense can this be considered a survival of the fittest, but of the most favored; and we strongly suspect that this is true of all forms of life.

It is well known that the most trying time in the life of all birds is the molting season, which varies with different species; that of the pheasant and quail is in August and September, and the common fowl in September and October, the time depending somewhat on conditions and temperature. Dropping their old feathers and having to produce a new garb, in addition to providing for their ordinary requirements, is a drain on their endurance, and, if not properly fed, they either die or go into winter quarters in a condition so reduced that they do not recuperate sufficiently by spring to transmit vitality to their eggs. This is true of old birds, and doubly so with very young birds that have no reserve strength to draw upon. Every breeder knows the value of unchecked growth in the development of life. It was with the hope of meeting these requirements to some extent that the study of and experimenting with food was undertaken. That we have succeeded in some degree is evident from results obtained with pheasants and bantams; but, while we are to that extent satisfied with the results attained, and see no reason why they should not be conclusive, we are aware that no scientific deduction should be made unless it is based on an accumulation of facts. One thing, however, is settled beyond question, — the use of maggots and granulated food is of the greatest importance in rearing Mongolian pheasants. The experiments will be continued on a larger scale next year.

Ruffed Grouse. — Unfortunately, we were unable to obtain eggs to continue experiments with grouse at Winchester this year.

The Belgian Hare. — The remarkable rabbit craze that recently swept over the country has apparently subsided. Elaborate advertising caused a temporary boom that has not been sustained. Many books were published, giving directions how to breed and care for these animals. The breeder was cautioned to avoid all currents of air, as it was sure to produce snuffles. Nor must the animals be given green food, as it would cause slobbers. Then followed thirty or forty different prescriptions for sick rabbits, conveying the idea that these animals are very dependent upon continuous medical treatment. Rabbits reared under conditions thus suggested are wholly unfit for food, and should not be used for that purpose.

It is to be regretted that the Belgian rabbit was not put on the market at its true value. The reaction which is likely to follow the attempts to breed it for speculative purposes, and under unnatural conditions, may for a time retard the proper development of an enterprise that must be considered an important factor in the production of a very desirable article of food.

In order to aid those who wish to promote this industry along rational lines, we give the method which has been successfully pursued at the Winchester station. The breeding rabbits are placed in small yards, framed and covered, sides, top and bottom, with wire netting. The top is movable, in order to facilitate feeding and to clean the yard. To this yard is attached a box about fourteen by twenty inches, and fifteen inches deep; bottom covered with wire netting; top slightly sloping, and water-tight. These yards and boxes are set in open ground, where they are exposed to all climatic changes. As they are light, they can be easily moved if necessary. The box is used for breeding, but rarely for any other purpose. The rabbits are given a handful of oats in the morning, and late in the afternoon as much green food as they will eat. When green food cannot be had, they are given chopped hay, preferably clover, and bran moistened and allowed to stand three or four hours before feeding. Fresh water is kept before them at all times, except when there is snow. The young are allowed to run out into the large enclosure when they are three weeks old.

These directions are so plain that any one can understand them, and whoever follows them, if he gets a hardy strain of rabbits to start with, will have no difficulty in raising healthy stock, suitable for food, which should be the only proper object for breeding these animals, except it be to stock covers so as to increase the numbers of small game.

We are not confident that success will be attained with hutch-bred rabbits, for our experience with them has not been encouraging. Last June, a friend who had bought some fine stock, with a long and celebrated pedigree, brought a doe and six young ones to the Winchester station, and requested the superintendent to care for them while he was on his vacation. He was told how they would be cared for, and replied, "If

they cannot stand that treatment, I do not want them." The doe and five young ones died in less than three weeks, although our rabbits thrived wonderfully under precisely similar conditions.

The experience at Winchester shows that the Belgian hares bred by the State are perfectly healthy and more easily raised than the common barnyard fowl. The stock was turned over to the State in the spring of 1900. There were three old and four young does, and from this small stock there have been more than two hundred distributed, and we have now twenty-eight breeders and over sixty young rabbits in various stages of growth. The remarkable feature of our work in breeding the Belgian hare has been the absolute immunity from disease of any kind. A few very young rabbits that were exposed to the heat of a broiling mid-summer sun suffered from sun-stroke, and some died; but this only indicated that they were subjected to excessive and unnatural conditions. In a state of nature they would have been sheltered. And this, too, despite the fact that the promulgated "directions" of "expert" breeders have been ignored, and the animals have been raised under natural conditions of climate, and in other respects have been treated in a common-sense manner. If nothing else results from breeding these rabbits by the State, the information obtained is worth much more than the experiment has cost; for it has been clearly demonstrated that these animals can be bred and reared by the farmer with as little trouble as poultry, and with probably greater profit, if healthy animals are first secured for breeders, and methods similar to those adopted by the State are followed.

It is of course too soon to reach any conclusion as to the result of the efforts to stock the State covers with rabbits; in the natural order of things it will be some time yet before a correct estimate can be made of what may be accomplished in this direction. Meanwhile, the demand for the Belgian hare for liberation in the wilds comes from all sections of the State, and the applications are so numerous that it has not been possible to comply with them all. They indicate the popularity of the attempt the commission has made to increase the numbers of our small game animals, and also that fears of the State being overrun with rabbits is not troubling the average person.

At the same time, exaggerated statements have led some to believe that there is a positive danger in stocking our covers with the Belgian hare, which, as we have shown in previous reports, is an animal resulting from the interbreeding of several varieties of European rabbits. The rabbit pest in Australia and California naturally may lead to apprehension, and also to misapprehension, on the part of those who take only a superficial view of the subject. Australia has suffered because of an abnormal increase of the rabbit, for the reason that, with a semi-tropical climate, with enormous areas of unsettled or sparsely settled territory, and with no natural enemies to such an animal, the conditions for the increase of the rabbit were ideal. One cannot wonder at the result. The enactment by the California Legislature of a law authorizing a bounty of five dollars for every coyote killed led to the destruction of the natural enemies of the rabbit, and its consequent rapid increase in that State. With a mild or semi-tropical climate, almost unlimited areas of wild land and other favorable conditions for breeding, and with their enemies legislated out of existence, it is scarcely remarkable that rabbits soon became more of a menace to the farmer than the sheep-eating coyote, and that it often becomes necessary to organize parties to engage in a "round up" for the wholesale slaughter of the troublesome "Jacks" or other allied species.

But the climatic and other conditions in Massachusetts are entirely different from those in Australia and California; they closely approximate those of northern or central Europe. The several varieties of European rabbits, which are the progenitors of the so-called Belgian hare, have existed in Europe since prehistoric times; and neither history nor tradition, so far as the writer is aware, transmits information of a superabundance of these animals in Europe, even in regions that were sparsely settled or unoccupied by man in the early historical periods. The conditions for the increase of rabbits in England should certainly be as good as they are in this State. Nevertheless, the supply comes so far short of the demand, that it has been stated, on the authority of the British Home Industries Association, that rabbits were imported into England for food purposes in 1900 to the value of \$3,652,185. These figures show how groundless are the fears of an over-supply of rabbits in

Massachusetts as a result of stocking the covers with Belgian hares, and how important it is that their numbers should be increased in the wilds, if possible; not only because they are needed as an inducement to seek healthful recreation, but especially because they may become of immense consequence as a food supply.

The many requests for the distribution of the Belgian hare in various sections of the State, which have been received by the commission, indicate that intelligent men throughout the Commonwealth have a proper appreciation of what may possibly be accomplished by the liberation of this animal.

Sutton. — The conditions which prevented anticipated success at the Winchester station doubtless also affected the breeding and rearing of pheasants at the fish-hatching station in Sutton, and may account for the apparent lack of vitality referred to by Superintendent Merrill. But the loss was not so great at the latter place, and has been partially attributed to other causes, some of which are preventable. The result attained, however, seems to demonstrate the suitability of the Sutton station for breeding birds.* The capacity of coops, hatching boxes, etc., for breeding and rearing pheasants at the hatchery has been doubled since our last report, and the station now has an equipment for a slightly larger number of breeders than we had there during the present year. This provision for breeding includes the obtainment, partly by purchase and partly by breeding, of a fine lot of bantams, which seem to make the best mothers for pheasants. A few of the young pheasants have been reserved to keep up the brood stock, or to increase it slightly, and, barring some unlooked-for mishap, the outlook for a large number of young birds next year is promising.

Ruffed Grouse. — Superintendent Merrill made an effort to raise some partridge in confinement. As in the experiment tried by Mr. Brackett the previous year, no difficulty was met with in hatching the chicks and raising them to about the same

* The difficulties attending the raising of pheasants are much greater than one unfamiliar with the work might suppose. They are well and forcibly expressed in a published letter from Mr. H. P. Foster of Ashby, Mass., who has probably met with better success in breeding the Mongolian pheasant than any one who has engaged in it privately. He says: "Last year I set 1,167 eggs, and I raised 225 birds. This seems a small number compared to the number of eggs set, but the birds are hard to raise, and there are so many things to contend with that I consider it a good average."

stage as those attained to at Winchester last season; but then they all died in a short time.

Report of Superintendent. — The following report of the superintendent of the station presents in detail the facts connected with breeding and rearing pheasants, and also contains allusions to certain experiments and observations which are interesting in this connection: —

STATE FISH HATCHERY,
WILKINSONVILLE P. O. (SUTTON), MASS., NOV. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — For the present season, 36 pheasants, 9 males and 27 females, were reserved for breeding purposes, and were divided into nine lots, each lot consisting of 1 male and 3 females. Two females died before the beginning of the laying season, reducing the number in pens Nos. 3 and 4 to 2 each. The distribution of the birds among the pens is shown in the following table, together with the production of eggs credited to each pen: —

	TWO-YEAR-OLD BIRDS.		ONE-YEAR-OLD BIRDS.						
	Pen No. 1.	Pen No. 2.	Pen No. 3.	Pen No. 4.	Pen No. 5.	Pen No. 6.	Pen No. 7.	Pen No. 8.	Pen No. 9.
Hens,	3	3	2	2	3	3	3	3	3
Eggs,	111	96	96	35	89	59	53	75	68

The average was $27\frac{9}{25}$ eggs per bird, while it was $36\frac{2}{7}$ last year. This shows a very marked decrease, for which the young birds seem to be responsible, although the two-year-old birds laid less than they did a year ago. It is quite certain that in Pen No. 1 the eggs were laid by only 2 birds, as the third one laid marked eggs, and these, being soft-shelled, were not counted. I believe it is very important that advantage be taken of the opportunity afforded, by keeping records of each pen, to make a selection of breeders by discarding such birds as those in pens Nos. 4, 6 and 7, and not only reserving the better lots, but from the best rearing the stock that is intended for breeding in the future.

From 682 eggs 281 chicks hatched; the 401 eggs that failed to hatch were mostly fertile, but contained weak embryos. Of the chicks reported hatched, 100 were helped from the shell, and 42 of these died the first day, because of the weakness that destroyed so many embryos in the shell. The rest of the loss, which was 140, was equally divided between the mortality from ordinary causes and

the unaccounted loss, which is largely due to crows. From the oldest lot of chicks 25 were taken by crows between the end of the first week and the time they were confined, which was at the age of four weeks; during the same time only 4 died in the coops. The loss from ordinary causes was less than usual, except in some of the younger lots, and in those was caused by lice, which is surely preventable. The reason for the presence of vermin was due to the necessity of getting setting hens from many different places. Most of the hens were free from vermin, but a few thus troubled were sufficient to infest the whole lot. When the youngest chicks had attained the age of one month, the number on hand was 100. In September, 40 of these were distributed; which, with the subsequent loss of 19, reduced the number of young birds on hand to 41, of which 15 are males and 26 females. Of the old pheasants, 6 males and 25 females survive. To fill the pens, 2 females and 3 males should be reserved; and, taking into consideration the probable loss, several beside these should also be held, thus leaving 30 of the young birds for distribution.

The loss of birds over the age of one month has been 30, which seems unnecessarily heavy. The chief occasion for it I believe to be the unsuitableness of the breeding pens for confining immature birds, and especially the height of the pens, or the cover. The last named has caused the loss of many of the finest birds by concussion and consequent broken necks. Tests of roomy temporary pens, made to enclose weedy ground which seemed especially adapted to the needs of chicks, gave most decidedly satisfactory results.

Two lots of birds confined in pens like that last referred to have excelled all others in growth and vigor, and, although these are now confined in the small pens, they still keep ahead of the others. One lot, the youngest and weakest, outstripped all but the oldest lot, which was likewise experimented with, and fewer of its numbers died than of any lot. Two of the principal causes of loss — the destruction of the chicks by predatory birds and animals and the loss of half-grown birds by close confinement in the pens — are avoidable, and, occurring, as they usually do, when the chicks have passed the age at which they are subject to heavy unavoidable loss, are very severely felt. The use of pens, such as those referred to, which can be very cheaply made and can be easily moved to fresh ground, will doubtless save the most of the birds which otherwise are liable to be lost after the third week.

The pens made for experimentation were enclosures of boards and poultry netting, and covered with fish-netting, the cost of which was about one cent per square yard. The sides of the enclosures need not be expensive, for they can be made very low, and the cover can

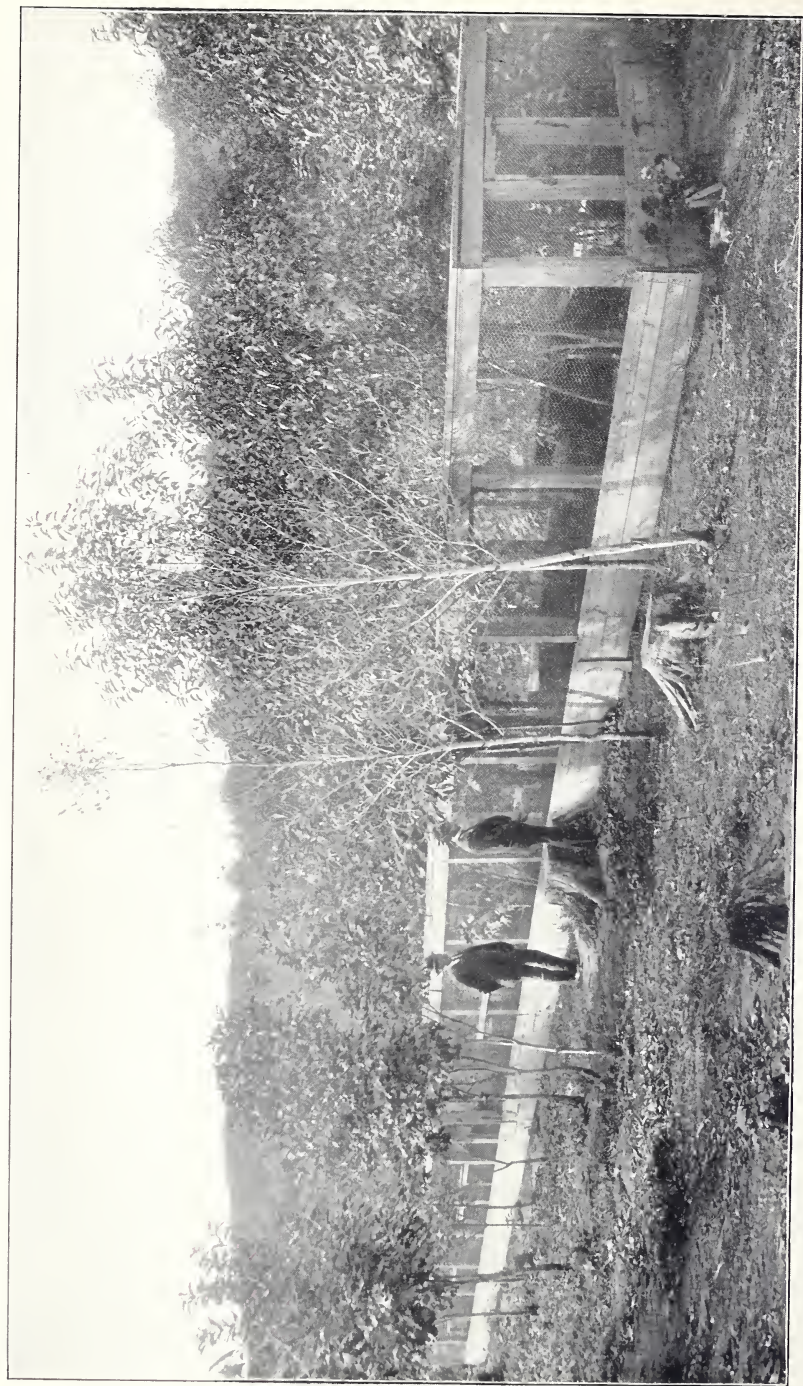
be elevated on poles, tent fashion, to give room. Enclosures like this can be used until snow falls; at that time the pheasants are well developed and hardy, and will safely endure closer confinement.

The heavy loss of eggs was due to obscure causes, and the only conclusion that can now be reached in regard to avoiding it in the future is to increase the vigor of the brood stock; it being probable that the weakness of the embryos, to which the failure to hatch seemed due, was a consequence of the lack of desirable vitality in the breeding birds, and this seems also manifested in the comparatively small number of eggs laid. The first lot of eggs hatched gave good results, — 85 chicks from 94 eggs. The second lot went to the other extreme, only 6 chicks hatching from 86 eggs. On examination, the eggs were found to be as fertile as those in the previous lot, but the embryos had died before full development. In all the succeeding lots the embryos were fully developed, but in most cases they were too weak to emerge from the shell. From 400 eggs only 100 chicks hatched without assistance; besides these, there were 100 that were helped from the shell, to which reference has already been made, and 100 were taken out too weak to survive for even a few hours. The hatching was done under such varying conditions, with results so nearly unvarying, that it is quite certain nothing in the condition of the weather, the arrangements or place for hatching, was responsible for the loss incurred.

While the pheasant pens are not satisfactory, it is difficult to suggest any way in which they may be improved, and the only thing I would advise in connection with them is, that measures be taken to keep visitors at a proper distance. The pheasants are so wild in the breeding season, and are so frequently frightened by visitors who come here in great numbers, that it is certain much harm must result if there are no restrictions. An inexpensive fence placed at a suitable distance from the pens will probably accomplish what is desired.

To determine what form of pen is best, I suggest that an experimental one be constructed, embracing the features which in the temporary pens gave such desirable results, and that the eggs of a trial lot of breeders placed therein be hatched, and the chicks reared separately. The weeds that gave such excellent cover for the young might not do for the old birds, but a location can be easily found where bushes will serve the same purpose.

The food for the young pheasants was changed by the addition of unsweetened custard, and the results were satisfactory; the loss under the third week was greatly reduced, and only very rarely could be attributed to the food, or inability to assimilate it. Maggots were fed to the usual extent, and as the chief ration. The custard could be kept before the birds at all times, and the brood was thus strength-



PHEASANT COOPS AT SUTTON.

ened by more frequent feeding, and this also enabled the weak ones to feed as often as any. With maggot feed exclusively the weaklings frequently failed to get what they needed, and died in consequence.

In this season's work it was found to be of great advantage to let the chicks have a good wide range. When a brood of young pheasants had unrestricted range, without the competition of bantam chickens or older pheasants, they made a marked gain over those confined to restricted areas; though the advantage thus secured was to some extent neutralized by the greater exposure of the chicks to their enemies, and for this reason it was sometimes impracticable to let the birds have their liberty.

Respectfully,

ARTHUR MERRILL.

Distribution of Game Birds and Animals. — During the year 368 pheasants have been liberated in the covers of the State, in response to the requests of 55 applicants. The list of applicants and points of distribution are given in the Appendix. This distribution far exceeds in numbers anything heretofore accomplished by the commission in this direction, and is due primarily to the expansion of the work, especially at Sutton; but also to the fact that it has been considered desirable to liberate all the birds available for distribution, and not to winter any except those reserved for breeding purposes.

The output of hares has been 224; in addition to those, a considerable number of young have been retained for wintering, as has been mentioned elsewhere. The list of persons whose applications were complied with and the points of distribution are shown in the Appendix.

So great has been the demand for the distribution of these birds and animals that it has been impracticable to comply with all the applications, despite the large increase in the output of pheasants and the number of rabbits liberated. In all cases pheasants and rabbits are liberated by the deputies of the commission, and only in the covers suitable to them. In no case are they sent to private persons, to be retained in confinement. In order to insure uniformity of action and a clear understanding of the requirements, the following instructions regarding the distribution of pheasants and hares were supplied to every deputy entrusted with this duty: —

Deputies entrusted with the distribution of pheasants or hares will go by the most direct and expeditious routes, and will see that the

birds or animals in their charge are properly placed in cars, etc., to insure their safety. Each deputy will be provided with a letter to conductors or others that will insure such courtesies as are commonly accorded to the State by transportation agencies. This should be shown to officials.

Pheasants and hares are to be placed in the woods or in the brush, where they can run wild. It is not permissible to leave them in restricted enclosures or pens, where they will not have liberty of flight, etc. With this in mind, deputies will co-operate as fully as possible with those to whom shipments of birds and hares are sent, in the proper distribution of the animals or pheasants in their charge.

When pheasants are put out during seasons when food is not easily available to them, the deputies will advise that some suitable food be thrown out daily near the spot, so that the birds can get it, and thereby be induced to stay in the locality, and also be relieved from the suffering that their unfamiliarity with their new environment may otherwise cost them.

When returning crates or boxes to Winchester by express, take receipt for same, and see that they are properly addressed.

Parties to whom consignments of birds or hares are being shipped should be notified, by wire or otherwise, of the expected hour of arrival at destination.

Proposed Introduction of New Game Birds. — Through the kindness of Rev. Cephas F. Clapp, an effort has been made to introduce from Oregon, for the purpose of artificial propagation, the so-called "mountain quail," or plumed partridge (*Oreortyx pictus plumiferus* Gould).^{*} This is a hardy mountain species, that is found in the comparatively dry elevated regions in the interior of the Pacific coast States and as far east as Nevada. Captain Bendire found it on Mount Kearsarge, Inyo County, Cal., where in summer it reached an altitude of ten thousand feet.[†]

The following notes regarding its habits are extracted from Captain Bendire's description of the species:—

He considers it a "handsome" bird, and compares it favor-

^{*} A closely related species (*Oreortyx pictus* Baird) is also known on the Pacific coast as the "mountain quail;" but, owing to the fact that it is found only in "moist mountainous regions along the coast, where the rainfall is heavy," it is evidently dependent upon climatic conditions that are not found in New England. For this reason it probably would not thrive here.

[†] "Life Histories of North American Birds," etc., by Capt. Charles Bendire, U. S. A. (retired). Special Bulletin No. 1, U. S. National Museum, Washington, D. C., 1892, p. 14.

ably with *O. pictus*, which “is the largest of the American partridges.” He found it “a shy and retiring bird, usually to be found only in small coveys, and on being alarmed trusting more to the legs than wings for escape.” He considers it “essentially a bird of the mountains, where it is more partial to the open pine forests and rocky ridges, covered with chaparral and undergrowth, than to densely timbered portions of ranges.”

It begins to mate “in the latter part of March and the beginning of April, according to latitude and altitude.” A brood of young birds, about a week or ten days old, which he came across in June, 1883, were “already handsome and active little creatures,” that “scattered promptly in all directions, and the majority were most effectually hidden in an instant.”

The maximum breeding capacity of the species was a brood of twenty young birds, observed by Mr. Loren W. Green of the U. S. Fish Commission; but the eggs usually vary from eight to fourteen.

Captain Bendire states that the “food consists of insects, the buds and tender tops of leguminous plants, small seeds, and berries of various kinds; the nest, simply a slight depression in the ground scratched out by the bird, and lined perhaps with a few dry leaves, pine needles, grasses, and usually a few feathers lost by the hen while incubating.”*

The reputed hardiness of this species, and the fact that it “buds” in winter, like our native ruffed grouse, prompts the belief that it will thrive in this State. It is claimed that it can be reared in captivity with less trouble than the Mongolian pheasant. If, therefore, it is practicable to secure even a few birds to breed from at the beginning, it seems feasible to soon be in a position to annually turn out a large number, in view of the fact that two litters of eggs may be expected under favorable conditions.

Mr. Clapp unfortunately found a serious obstacle in the law of Oregon which prohibits the transportation of any wild birds of this species out of the State. With the utmost desire to serve us in this matter, he found that he was effectually prevented from doing anything, because the statute, which was

* *Ibid.*, pp. 14-16.

enacted to prevent pot hunters from accomplishing the practical extermination of the "mountain quail," proved an effective barrier to its exportation to another State for scientific purposes. Under the circumstances, and in view of the purpose for which the birds were desired, it was considered advisable to invoke the good offices of the Governor of Oregon. Accordingly, a letter was addressed to His Excellency Gov. T. T. Geer, by the chairman of the Board, on Nov. 8, 1901, setting forth the object of this commission in attempting to secure living specimens of the "mountain quail," and expressing the hope that their procurement for transportation out of Oregon for the purpose indicated might not be found contrary to the spirit of the law of that State regarding transportation of game across its boundaries.*

Correspondence has also been tentatively inaugurated bearing on the possibility of the introduction of the capercailzie (*Tetras urogallus*) and the black game (*T. tetrix*). Both of these are inhabitants of northern Europe, and are among the finest game birds known. The capercailzie belongs to the grouse family, of which our ruffed grouse and prairie chicken are well-known examples in this country. It is the largest grouse known, and considered the noblest game of the grouse family. A weight of ten or twelve pounds is often attained by the full-grown cock. The black game weighs about three pounds, is hardy, and recognized as a fine game species. Like its larger congener, the capercailzie, it is a grouse, and essentially a bird of the woods. These are considered the two most important species of wild birds of the Scandinavian peninsula, considered either from the stand-point of food or sport.

Thomas has considered the question of their introduction here. He writes as follows concerning it: "Will the capercailzie and black game thrive in the United States? On this question I think there can be no reasonable doubt. . . . It is my firm conviction that both the capercailzie and black game will thrive throughout all the wooded districts of New England, New York and Pennsylvania, and westward through

* Since the above was written, and while this report is going through the press, arrangements have been concluded whereby birds of this species can be obtained at the proper time.

the greater portion of the States of Michigan, Wisconsin and Minnesota." *

Attempts to introduce the black game in Maine and Vermont are reported to have been made by private parties ; but little is known regarding them, beyond the fact that a very few birds were liberated in the woods, doubtless in a weakened condition, in consequence of the transatlantic voyage, and it is not improbable that they died before the period of reproduction arrived, — at least, we are unable to learn that any birds of this species have ever been seen. If, however, it is practicable to breed either of these species in captivity, — and there appears no reason to doubt it, — entirely different results might be secured by the acquirement of enough of them to inaugurate their propagation under State auspices. All attempts to breed from eggs of these species, shipped from a distance, have resulted in failure. Only adult birds can be relied on, and experiments already made prove the feasibility of their safe transportation. Mr. Thomas estimates the cost of strong, healthy birds of these species at twelve dollars each for capercaillie and seven dollars each for black game.

The familiar quail, or "Bob White," cannot be considered a new species in any sense of the word, since it is one of the best-known and most highly valued of our game birds. But the inauguration of the work of breeding and rearing it in captivity, which is now seriously contemplated, will, if undertaken, be an innovation in the effort the commission is making to keep our covers properly stocked with game birds. Until now there has seemed to be no necessity for the State to breed quail, since there has been no difficulty, as a rule, in purchasing them for stocking purposes. Much has been done in this direction by clubs and public-spirited individuals, and no doubt this commendable effort will be continued if it is feasible to get the birds. But the necessity for increasing the stringency of protective laws in the various States points to the probability that it may not be long before it may be impracticable to obtain in the open markets large numbers of quail for stocking our covers. Whether or not we undertake the breed-

* "Sweden and the Swedes," by W. W. Thomas, Jr., pp. 342, 343. Mr. Thomas is at present United States Minister to Sweden and Norway, in which capacity he has served this country on former occasions.

ing of quail immediately, it will be wise to be in a position to engage in this work, if necessary, before it becomes difficult or impossible to secure breeding birds. No difficulty whatever is anticipated in breeding and rearing quail, as they can be raised as easy as chickens.

ENFORCEMENT OF LAWS.

Financial Resources.—The appropriation for the enforcement of law was \$6,925, and for the first time in the history of the commission was made specific. This was something less than the amount devoted to the same purpose last year. For this reason, and also because the regular salaried deputies were appointed at the beginning of the year, instead of in May, as in 1900, and therefore were on pay twelve months instead of eight, the money available did not admit of appointing as many special deputies on pay for short periods of service as were put on the pay roll last year.

Force employed.—The force for the enforcement of fish and game laws consisted of (1) paid deputies serving throughout the year; (2) special deputies paid for short and varying terms of service, as demanded by the exigencies of the work, who at other times were unsalaried officials; (3) special deputies receiving very little pay from the State, and that only for more or less short periods, and deriving their income chiefly from clubs or through employment as county or town officials; (4) deputies paid wholly by clubs but unsalaried by the State; and (5) unpaid deputies serving without pay from any source.

Five regular paid deputies were appointed at the beginning of the year, and have remained on active duty since. This enumeration does not include Deputy Holmes at Lawrence, whose duties are limited to preventing violations of the law relating to fishways and keeping a record of fish passing over the fishway at that point, and whose salary is \$70 per annum; nor does it include the deputy appointed at Yarmouth, on a salary of \$50 per year (this being derived from the appropriation for stocking ponds), whose duty relates solely to protecting Mill Pond, which has been reserved by the State for fish-cultural purposes, from poachers who might attempt to fish in it. While it is true that these men are part of the law-enforcing paid officials, they belong to a special local class, with limited

responsibilities, and not to the active force of salaried deputies, whose service is continuous and may be required in any part of the State.

Ten special deputies were on the salaried list for more or less short terms, for the most part, however, only during the two months of the open hunting season; some who were paid for longer periods received only nominal salaries.

The highest salary paid was \$60 per month, and the lowest \$5 per month.* On the whole, the work was conducted with much economy, and with the utmost care regarding expenditures.

The unpaid deputies who received no pay whatever from the State numbered 120. These were not all appointed at the beginning of the year, for appointments were made in every month, even as late as December. The list includes men of many professions, even members of the Legislature and officials of the United States Fish Commission. It is an indication of the earnest desire for the protection of fish and game, when manufacturers, merchants, lawyers, sheriffs, deputy sheriffs, policemen, constables and farmers (not to speak of others) seek the opportunity to do what they can to enforce fish and game laws, if nothing else will suffice; but who, as a rule, prefer to unite a show of authority with good advice and instruction, if the same amount of good can be accomplished thereby.

System adopted. — The system followed this year was similar to that adopted in 1900, varied slightly, however, to meet somewhat different conditions, arising chiefly from a reduced force during that portion of the year — the open season for hunting, and a few weeks previous — when it becomes necessary to prosecute the work most vigorously in all sections of the State.

The distribution of information relating to the fish and game laws is considered among the most efficient means to prevent violations of these statutes; and it is evidently wise and just for the State to inform its citizens, as fully and as promptly as possible, of changes in law and of the restrictions which must be observed in fishing and hunting. Acting on this principle,

* In this instance the deputy was actively at work, and did efficient service; the bulk of his salary was paid by a club.

over 5,000 copies of fish and game laws in pamphlet form have been distributed; 1800 copies of cloth and paper posters containing abstracts of these laws have been placed in post-offices, railroad stations and other public places; and copies of the law relating to returns of fisheries have been sent to every person or corporation known to require one. When it is stated that the number of fish and game laws thus distributed were more than eight times as many as in 1899, the relative magnitude of the present work of this kind will be understood. Nothing that the commission has done has met with fuller public appreciation. This is shown by the demand for this kind of literature, which was considered phenomenal last year, but has since been much exceeded.

In addition to the documents already referred to, the commission has distributed a considerable number of copies of "Laws relating to Inland Fisheries in Massachusetts, 1623-1886." These have been placed in town libraries and elsewhere where they will be available for reference.

Besides all this, abstracts of the fish and game laws have been widely published in the press, as news; more or less extended reference has likewise been made to special laws and to the opening of the game season, and what could be legally done by hunters. The great public interest in these matters has induced the press to become a powerful auxiliary in the diffusion of knowledge relating to legal restriction of fishing and hunting. That all this has resulted in the prevention of many violations of law, and made it almost impossible for one to transgress unwittingly, may be reasonably assumed.* But,

* "The man who kills game or catches fish out of season is either a very cruel or ignorant person; he who wantonly disregards the game laws, well knowing their significance, is a criminal; he who hooks a trout that is about to spawn, trips a doe with her young, or knocks over a bird about to lay or that is already caring for her eggs or brood, and knows not the crime he is committing, is a fool. . . . The first lesson in field sports and angling is the study of the game laws. The bungler's excuse for killing too many birds or taking too many fish — that he did not know the law — is silly. It is the duty of the man who resorts to the gun and rod to know the law before he gives trigger or casts his bait. His lack of knowledge on this question is not recognized as a legitimate excuse in court, and the sportsman who hears this sort of a plea knows the culprit is not of the true fieldman's order. The ignorant game law breaker cannot escape punishment by pleading ignorance any more than the wanton destroyer who derives a benefit from the sale of his unseasonable game may go free by pleading poverty. Men are not allowed to tear up whole fields of grain to satisfy one stomach, or rob a needful multitude to clothe one back. To kill a bird in nesting time means the murder of her young as well; the capture of one fish on her spawning-bed is the destruction of thousands of others she is rearing." — Charles Bradford, in *Leslie's "Weekly,"* June 15, 1901.

while it is generally conceded that there has been a better observance of fish and game laws this year and last than ever before, there have been, nevertheless, more or less violations. For there is always a lawless element among those who hunt or fish; some are indifferent, others defiant, and others hope to escape detection by cunning or adroitness. Unfortunately, there are those who have not yet learned to seriously consider game laws as legal restrictions that actually should be observed as a matter of principle, and because respect is due the law-making power; and, as a result, there is developed sometimes a feeling that it is not a serious error to hunt or fish not in strict conformity to the law. Occasionally a young boy, or a woman unfamiliar with such matters, may err unintentionally, but these are rare exceptions. Those who disregard fish and game laws are usually old offenders or persons disposed to lawlessness, and nothing but the strong hand of the law can be relied on in dealing with them.

The most common violations may be classified under three general heads, namely, the illegal capture and sale of lobsters, hunting on Sunday, and illegal fishing.

The plan adopted, as already stated, was generally like that of last year, but, owing to the comparatively small number of paid deputies, it was more difficult to organize parties of these, consequently co-operation of unpaid deputies and local officers was often sought. This has generally been given with much heartiness, and the commission is under obligation to these officials, who have zealously aided in the enforcement of protective laws.

The paid deputies have been continuously on the move, and not only have they been most active in enforcing laws, but they have done good service in distributing fish, pheasants and Belgian hares. For a brief time all the salaried officers, with one exception, were assembled on the coast to enforce the lobster laws; but even then the force was insufficient for the purpose, and could not be kept on the coast long enough, with justice to other sections. Several arrests were made, and for a time there seemed to be a check to illicit trade. Other arrests were made, after the three coast deputies were left to grapple with the problem, and when they worked single-handed or otherwise, as circumstances permitted; but it was beyond their

power to do all that was required, even if other duties had not occupied their time to a greater or less extent.

Every possible effort has been made to look after all cases of which complaint has been made. In some instances, when it has been feasible to secure evidence, parties have been arrested for acts unwitnessed by the deputies, and convictions have been secured. In some cases of deer killing, however, the evidence necessary to secure conviction was not obtainable, and nothing could be accomplished. The moral effect of some of these cases was, nevertheless, excellent, for the efforts put forth impressed all familiar with the facts that it is unsafe to disregard the fish and game laws, even if a deputy is not within many miles.

There is available a great mass of material which shows how the laws were enforced, but the limitations of this report forbid the quotation here of extracts from the press, letters and reports.

Two matters connected with the enforcement of the fish and game laws deserve special mention, for the reason that there has been some misunderstanding of the position taken by the commission.

Rulings by the courts in the early part of the year led the commission to inquire of the legal department of the Commonwealth regarding the Sunday fishing law (section 11, chapter 98, Public Statutes), which had been vigorously enforced by our deputies up to that time, since the enforcement of this statute had until then been deemed a duty. The decision rendered, under the authority of the Attorney-General, Hon. Hosea M. Knowlton, held that:—

The unpaid deputies of the Fish and Game Commission are not entitled to any portion of the fines arising out of convictions for Sunday fishing, for the reason that the statute fixing a penalty for Sunday fishing is not a "law relating to inland fisheries." . . . The statute prohibiting Sunday fishing is P. S., c. 98, § 11: "Whoever attempts to take or catch any fish on the Lord's day, . . . shall be punished by fine not exceeding ten dollars." This section is part of the act of 1865, c. 253, entitled "An act for the better observance of the Lord's day." Manifestly the latter act is not a "law relating to inland fisheries," within the meaning of the former act. Fishing in the open sea is likewise prohibited on Sunday. The enforcement of this act is no more one of the duties of your deputies than the enforcement

of another section of the same act found in P. S., c. 98, § 10 :
“ Whoever on the Lord’s day discharges any firearm for sport . . .
shall be punished by fine not exceeding ten dollars.”

This decision made it clear that the Sunday fishing law is simply a police regulation ; that its enforcement is a police duty, — not to be considered one of the duties properly devolving upon the commission. This made necessary a decided change in the scope of law-enforcing work, and led to the issuance of the following circular order, which was sent to all deputies : —

By order of the Board, it is not deemed incumbent upon this commission to attempt the enforcement of the Sunday fishing law, and prosecutions under this law now pending will be withdrawn. This is not to be understood as preventing the arrest of parties fishing on Sunday in ponds closed to fishing on that day, under chapter 208, Acts of 1897, or in brooks wherein fishing is prohibited on Sunday, under chapter 284, Acts of 1900. . . .

Deputies are earnestly enjoined to carefully observe this order.

The circulation of this order led to much misapprehension, due to the fact that statements were published to the effect that the commission was “ abrogating ” the laws, or words to that effect. This misrepresentation made it necessary to issue the following open letter, which fully explains the position of the commission : —

Recently much that is misleading and inaccurate has appeared in the press regarding the order relating to the enforcement of the Sunday fishing law issued by the Commissioners on Inland Fisheries and Game. As a result of this, there is apparently a misapprehension on the part of the public of the proper relation of the Fish and Game Commission to the law referred to, and its right or duty to enforce it. For this reason it seems desirable and timely that the public should be correctly informed regarding the matter.

Section 1, chapter 91 of the Public Statutes, provides that “ all laws relating to the culture, preservation, capture or passage of fish shall be known as the laws relating to inland fisheries ; ” and section 3 of the same chapter provides, among other things, that “ each of the commissioners may personally or by deputy enforce all laws regulating inland fisheries. ” These provisions of law have heretofore been deemed sufficient warrant by the commissioners to conclude

that they might justly assume that the law relating to Sunday fishing (section 11, chapter 98 of the Public Statutes) was a law "relating to the . . . preservation" and "capture . . . of fish," and therefore that it was not only their right, but that it was incumbent upon them, to enforce this law. As a consequence, the law has been as vigorously enforced as any fish and game law on the statute books, until it was considered necessary to take other action. But recent rulings of the lower courts, backed by a decision of the Attorney-General of the Commonwealth, establishes beyond question the fact that the statute prohibiting Sunday fishing "is *not* a 'law relating to inland fisheries,'" and that the enforcement of this act (Public Statutes, chapter 98, section 11) is no more the duty of one of our deputies "than the enforcement of another section of the same act found in Public Statutes, chapter 98, section 10: 'Whoever on the Lord's day discharges any firearms for sport . . . shall be punished by fine not exceeding ten dollars.'" A later statute (chapter 116, Acts of 1899) gives the commission full authority to prevent hunting on the Lord's day, and this will be enforced; but this law gives no power to the Board so far as Sunday fishing is concerned.

The Fish and Game Commission has no choice but to act in accordance with law, as interpreted by the courts and the highest official legal authority in the State, nor has it any purpose other than to abide by such decisions. Its authority for the enforcement of law being definitely limited to fish and game laws, and the recent rulings and decisions having established the fact that the law relating to Sunday fishing is "An act for the better observance of the Lord's day," and not a fish law, it was manifestly our duty to instruct our deputies not to enforce a law which we have no right to enforce. To ignore court rulings and the decision of the highest legal authority in the State would be manifestly an error, to call it by no harsher name; consequently the action taken by the commission is in strict compliance with law, and the wild tales that it has attempted to "set aside or repeal" the laws of the Commonwealth are too absurd to merit notice.

The repeal of chapter 138, Acts of 1891, at the last session of the Legislature, was ambiguous, so far as the practical application of the repealing act is concerned, and caused a wide difference of opinion, even among those most proficient in law, as to whether or not the close season for trout in Berkshire, Hampshire, Franklin and Hampden counties should begin on August 1 or on September 1. The commission was compelled to decide not to interfere with trout fishing in the counties referred

to until September 1, pending further legislative action. This matter was definitely settled at the special session in November of this year; the close season for trout fishing begins on August 1 next year in the four western counties mentioned.

Result. — As a result of the enforcement of fish and game laws during last year and this, the snaring of birds has been practically stamped out; Sunday hunting has been reduced to a minimum, as compared with other years; the marketing of partridge and woodcock, or their transportation out of the State, has been largely stopped; and a reasonable respect for the majesty of the law — as applied to the protection of fish and game — has been developed. The exception to this is found chiefly among the lobster fishermen and some of the dealers, who are self-destructive, so far as their industry is concerned, and some of them knowingly so. There are other violations, as has been shown elsewhere, for we are far from ideal conditions, and there doubtless have been cases of selling birds illegally. But these are the exceptions, and it may safely be asserted that the conditions to-day, so far as maintaining a respect for the fish and game laws is concerned, have never been so good as they are now.

That those entrusted with the enforcement of these laws, and especially the paid force, have been efficient and reasonably zealous is evidenced by the fact that 156 arrests have been made; 134 convictions have been secured, with penalties amounting to \$1,678.16.

NEW LEGISLATION.

It is of the utmost importance that the right of search should be given to the commission for the better enforcement of the fish and game laws, and also that ferrets illegally used or found in illegal possession should be confiscated. It is impossible in many cases to fully apply the law without some provision of this kind. This is too obvious to require elaboration. For this reason we recommend that the following be enacted into law : —

SECTION 1. For the purpose of enforcing the provisions relative to the protection of fish and game, either of the commissioners on fisheries and game, personally or by deputy, may search suspected persons or places for, seize and remove fish or game taken, held or

offered for sale in violation of any of the fish or game laws ; or may seize, remove and destroy any ferret held or possessed in violation of law.

SECTION 2. All acts or parts of acts inconsistent herewith are hereby repealed.

Section 22, chapter 92 of the Public Statutes should be amended so that it will read as follows : —

Whoever, except as provided in the preceding section, takes, carries, sends or transports, or causes to be taken or transported out of this Commonwealth any of the birds or animals protected by the provisions of this chapter, which have been illegally taken or killed therein, or has in possession such birds or animals, or either of them, with intent to take or cause the same to be taken out of the Commonwealth, shall be punished by a fine of twenty dollars for every bird or animal so had in possession or taken or caused to be taken or sent beyond the limits of the Commonwealth as aforesaid.

COURTESIES.

This commission has received from the United States Fish Commission consignments of eggs of brook trout, rainbow trout, landlocked salmon and pike perch ; also special statistics of its fish-cultural work in this State, and various publications, statistical and otherwise.

The post-office authorities have courteously continued permission to display in the post-offices in the State posters containing abstracts of fish and game laws. A similar favor has been shown by the management of the New York, New Haven & Hartford Railroad, which has permitted the display of fish and game law posters in their stations throughout the State.

The various railroads traversing the State, particularly those lines controlled by the Boston & Maine and the New York, New Haven & Hartford companies, have very generously carried, free, shipments of fish, birds and animals intended for distribution or for propagation. The following circular was issued by the Boston & Maine Railroad : —

BOSTON, MASS., April 22, 1901.

To Station Agents, Station and Train Baggage Masters.

Whenever fish, eggs or young fish in cans, pheasants or Belgian hares in crates, are presented at your station for transportation by

authorized agents of the Fish Commissioners of Massachusetts, New Hampshire, Vermont, Maine, or the United States Fish Commissioners, you will forward the same in baggage cars without charge, provided a person accompanies each shipment who holds transportation for himself. Train baggage masters will allow the person in charge of the shipment to ride in baggage cars with the same whenever desired.

Empty cans and crates will be returned to original starting-point without charge.

Whenever shipments are made, the forwarding agent will advise this office, giving number of cans or crates, and destination.

C. J. WIGGIN,
General Baggage Agent.

All that has been necessary to ensure compliance with this order, or similar instructions on other roads, has been an official certificate from the commission that the fish, birds or Belgian hares, for which free transportation is sought, are the property of the State.

Acknowledgments are due Hon. Andrew H. Morrison, Mr. N. B. Everett, Mr. Charles M. Bryant, Hon. Arthur E. Roberts, Hon. Joseph E. Love, Hon. John H. Casey and others for courtesies extended to the chairman on his visits to various sections of the State for the examination of ponds, etc.

Mr. Thomas L. Burney has presented to the commission the following mounted specimens: prairie chicken, ruffed grouse, pair of black game (male and female), and model of partridge snare with snared bird on it.

Mr. A. M. Nichols has presented the commission with a mounted specimen of a quail, and a photograph of a female partridge on her nest.

The commission has been privileged to extend courtesies in the following instances:—

To the United States Fish Commission, permitting the collection of egg-bearing lobsters; the operation of a pound net for scientific purposes, etc.

The Japanese legation in Washington was supplied, in compliance with its request, with copies of the last report of this commission.

The commission has been able to grant facilities to Mr. W. E. Castle of the Museum of Comparative Zoölogy, at Cam-

bridge, in order to assist him in solving certain scientific questions.

Letters of introduction to prominent merchants and vessel owners at Gloucester have been furnished to H. Kato of Japan, who is visiting this State to study its fisheries, and brought a letter of introduction to the chairman of the commission.

Deputy Thomas S. Holmes has been authorized to collect lampreys to be used for scientific purposes by the following persons: Prof. J. Percy Moore, University of Pennsylvania, Philadelphia, Pa.; and Prof. E. L. Mark, Director Zoölogical Laboratory, Harvard University, Cambridge, Mass.

Permits have been issued to the following parties to collect birds and eggs: J. Bion Richards, Fall River; Owen Durfee, Fall River; A. C. Bent, Taunton; Mabelle A. Brown, Haverhill; Robert O. Morris, Springfield; George H. Mackay, Nantucket; Charles F. Batchelder, Boston; Fred H. Kennard, Boston.

Fourteen permits to take sand eels for bait have been issued to the following citizens of Newburyport, and one to a citizen of Salisbury: Charles F. Lattime, W. H. Simmons, Joseph Thurlow, Charles R. Couillard, Frank L. Rogers, Albion P. Hilton, Warren G. Caswell, Charles A. Caswell, C. C. Adams, R. E. Pierce, Eldon G. Noyes, Stephen Caswell, Charles H. Small and Albert H. Leet, of Newburyport; and William H. Pierce of Salisbury.

J. W. COLLINS.

E. A. BRACKETT.

J. W. DELANO.

APPENDIX.

[A.]

LIST OF COMMISSIONERS.

UNITED STATES COMMISSION OF FISH AND FISHERIES, WASHINGTON, D. C.

George M. Bowers, Commissioner.

Irving H. Dunlap, Chief Clerk.

Hugh M. Smith, Assistant in charge of Division of Inquiry respecting Food Fishes.

W. de C. Ravenel, Assistant in charge of Division of Fish Culture.

C. H. Townsend, Assistant in charge of Division of Statistics.

Superintendents of United States Fisheries Stations.

Charles G. Atkins, Craig Brook, East Orland, Me.

E. E. Race, Green Lake, Me.

John W. Titcomb, St. Johnsbury, Vt.

Waldo F. Hubbard, Nashua, N. H.

C. G. Corliss, Gloucester, Mass.

E. F. Locke, Wood's Hole, Mass.

J. Nelson Wisner (in charge), Battery Island, Md.

L. G. Harron (in charge), Bryan's Point, Md.

John E. Brown (in charge), Central Station, Washington, D. C.

George A. Seagle, Wytheville, Va.

Alexander Jones, Erwin, Tenn.

S. G. Worth, Edenton, N. C.

J. J. Stranahan, Cold Spring, Bullochville, Ga.

Livingston Stone, Cape Vincent, N. Y.

S. W. Downing, Put-in-Bay, O.

Frank N. Clark, Northville, Mich.

S. P. Wires, Duluth, Minn.

R. S. Johnson, Manchester, Ia.

Dr. S. P. Bartlett, Quincy, Ill.

H. D. Dean, Neosho, Mo.

John L. Leary, San Marcos, Tex.

DeWitt C. Booth, Spearfish, So. Dak.

E. A. Tulian, Leadville, Col.

James A. Henshall, Bozeman, Mont.

H. H. Buck, Baker Lake, Wash.

Edgar N. Carter, Clackamas, Ore.

Giles H. Lambson, Baird and Battle Creek, Cal.

ARKANSAS.

H. H. Rotaken, President,	. . . . .	Little Rock.
W. B. Worthen, Secretary and Treasurer,	. . . . .	Little Rock.

CALIFORNIA.

H. W. Keller, President,	. . . . .	Santa Monica.
W. W. Van Arsdale,	. . . . .	San Francisco.
W. E. Gerber,	. . . . .	Sacramento.

COLORADO.

Game and Fish.

Charles W. Harris,	. . . . .	Denver.
A. A. Gordon, Secretary,	. . . . .	Denver.
T. J. Holland, Superintendent of Hatcheries,	. . . . .	Denver.

CONNECTICUT.

George T. Mathewson, President,	. . . . .	Thompsonville.
Robert G. Pike,	. . . . .	Middletown.
E. Hart Geer,	. . . . .	Hadlyme.

DELAWARE.

E. G. Shortlidge,	. . . . .	Wilmington.
J. Thomas Lowe,	. . . . .	Little Creek.

FLORIDA.

John Y. Detwyler, President,	. . . . .	New Smyrna.
John G. Ruge, Secretary,	Apalachicola.

GEORGIA.

A. T. Dallis, Superintendent of Fisheries,	LaGrange.
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ILLINOIS.

Nathaniel H. Cohen, President,	Urbana.
S. P. Bartlett, Secretary and Superintendent,	Quincy.
A. F. Gartz,	Chicago.

INDIANA.

Z. T. Sweeney,	Columbus.
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IOWA.

Fish and Game.

George E. Delavan, Warden,	Estherville.
L. and A. S. Peterson, Assistants.		

KANSAS.

George W. Wiley, Meade.

MAINE.

Fish and Game.

L. T. Carleton, Chairman, Winthrop.

Henry O. Stanley, Dixfield.

Edgar E. Ring, Orono.

Sea and Shore Fisheries.

A. R. Nickerson, Boothbay Harbor.

MARYLAND.

Jesse W. Downey, New Market.

Clarence L. Vincent, Snow Hill.

MASSACHUSETTS.

Joseph W. Collins, Chairman, Boston.

Edward A. Brackett, Secretary, Winchester.

John W. Delano, Superintendent of Hatcheries, Marion.

Office, State House, Boston, Mass.

MICHIGAN.

F. B. Dickerson, President, Detroit.

H. W. Davis, Grand Rapids.

George M. Brown, Saginaw.

Seymour Bower, Superintendent, Detroit.

George D. Mussey, Secretary, Detroit.

J. H. Johnson, Treasurer, Detroit.

MINNESOTA.

Game and Fish Commissioners. (Office at Capitol.)

Uri L. Lamprey, President, St. Paul.

W. P. Hill, Vice-President, Fairmont.

D. W. Meeker, Secretary, Moorhead.

H. G. Smith, Treasurer, Winona.

S. F. Fullerton, Executive Agent, St. Paul.

MISSOURI.

Samuel T. Rathell, Chairman, St. Louis.

Dr. P. L. Hurt, Boonville.

J. R. Hairston, Fayette.

E. P. Yenawine, St. Joseph.

J. T. Crisp,	Independence.
Philip Koplin, Jr., Superintendent,	St. Louis.
M. E. O'Brien, Superintendent,	St. Joseph.

NEBRASKA.

Game and Fish Commission.

Ezra P. Savage, Commissioner,	Lincoln.
George B. Simpkins, Chief Deputy,	Lincoln.
W. J. O'Brien, Superintendent of Hatcheries,	South Bend.

NEW HAMPSHIRE.

Nathaniel Wentworth, Chairman,	Hudson Centre.
W. H. Shurtleff,	Lancaster.
C. B. Clarke,	Concord.

NEW JERSEY.

Howard P. Frothingham, President and Treasurer,	Pompton Lakes.
William A. Halsey,	Newark.
Benjamin P. Morris,	Long Branch.
Richard T. Miller,	Camden.
George Riley, Protector,	Newark.

NEW YORK.

Forest, Fish and Game.

Timothy L. Woodruff,	Brooklyn.
DeWitt C. Middleton,	Watertown.
Charles H. Babcock,	Rochester.
John D. Whish, Secretary,	Albany.

OHIO.

J. L. Rodgers, President,	Columbus.
A. J. Hazlett,	Bucyrus.
C. E. Buroker,	St. Paris.
Albert Brewer,	Tiffin.
J. C. Burnett,	Sabina.
L. H. Reutinger, Secretary and Chief Warden,	Columbus.

OREGON.

Fish Commission.

Governor, T. T. Geer,	Salem.
Secretary of State, F. I. Dunbar,	Salem.
State Treasurer, C. S. Moore,	Salem.
L. P. W. Quimby, Game and Forestry Warden,	Portland.
H. G. VanDusen, Master Warden,	Portland.

PENNSYLVANIA.

Fisheries Commission.

S. B. Stillwell, President,	.	.	.	.	.	.	Scranton.
D. P. Corwin, Secretary,	.	.	.	.	.	.	Pittsburgh.
H. C. Demuth, Treasurer,	.	.	.	.	.	.	Lancaster.
James A. Dale, Corresponding Secretary,	.	.	.	.	.	.	York.
John Hamberger,	.	.	.	.	.	.	Erie.
James W. Correll,	.	.	.	.	.	.	Easton.

Game Commission.

William M. Kennedy, President,	.	.	.	.	.	.	Pittsburgh.
C. K. Sober,	.	.	.	.	.	.	Lewisburg.
James H. Worden,	.	.	.	.	.	.	Harrisburg.
E. B. Westfall,	.	.	.	.	.	.	Williamsport.
Charles B. Penrose,	.	.	.	.	.	.	Philadelphia.
J. O. H. Denney,	.	.	.	.	.	.	Ligonier.
Joseph Kalbfus, Secretary,	.	.	.	.	.	.	Harrisburg.

RHODE ISLAND.

J. M. K. Southwick, President,	.	.	.	.	.	.	Newport.
Henry T. Root, Treasurer,	.	.	.	.	.	.	Providence.
Charles W. Willard,	.	.	.	.	.	.	Westerly.
A. D. Mead, Brown University,	.	.	.	.	.	.	Providence.
William P. Morton, Secretary,	.	.	.	.	.	.	Providence.
Adelbert D. Roberts,	Woonsocket.
William H. Boardman,	Central Falls.

UTAH.

John Sharp,	Salt Lake City.
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VERMONT.

John W. Titcomb,	St. Johnsbury.
E. A. Davis,	Bethel.

VIRGINIA.

Frank Fletcher, Chairman,	Jenkins Bridge.
Seth F. Miller, Secretary,	.	.	.	.	.	.	Foster.
John A. Curtis,	.	.	.	.	.	.	Richmond.
George B. Keezell,	.	.	.	.	.	.	Keezelltown.
Pembroke Pettit,	.	.	.	.	.	.	Palmyra.

WASHINGTON.

Governor, John R. Rogers,	.	.	.	.	.	.	Tacoma.
State Treasurer, C. W. Maynard,	.	.	.	.	.	.	Tacoma.
A. C. Little, Commissioner,	.	.	.	.	.	.	Tacoma.

WISCONSIN.

Governor, Robert M. LaFollette, ex-officio, . . .	Madison.
Edwin E. Bryant, President,	Madison.
William J. Starr,	Eau Claire.
Calvert Spensley, Treasurer,	Mineral Point.
James J. Hogan,	La Crosse.
Henry D. Smith,	Appleton.
Currie G. Bell,	Bayfield.
Edward A. Birge, Secretary, ex-officio, Professor of Zoölogy, University of Wisconsin,	Madison.
James Nevin, Superintendent,	Madison.

WYOMING.

Albert Nelson, State Game Warden,	Grosvont.
S. H. Campbell, Superintendent Fish Hatchery, District No. 1,	Laramie.
C. W. Morgareidge, Superintendent Fish Hatchery, Dis- trict No. 2,	Sheriden.

[B.]

A REPORT UPON THE SCIENTIFIC BASIS OF THE LOBSTER INDUSTRY, THE APPARENT CAUSES OF ITS DECLINE, AND SUGGESTIONS FOR IMPROVING THE LOBSTER LAWS.

BY DR. GEORGE W. FIELD, LECTURER ON ECONOMIC ZOOLOGY IN THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

LETTER OF TRANSMITTAL.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
BOSTON, Dec. 18, 1901.

Hon. J. W. COLLINS, *Chairman, Department of Fisheries and Game.*

MY DEAR SIR: — In accordance with the request of His Excellency Governor Crane, and of your honorable commission, I have prepared a concise report upon the scientific basis of the lobster industry and the apparent causes of its decline, and have suggested a plan for future legislation.

In its preparation I have been influenced by no considerations whatever except a sincere desire to forward the best interests of the whole Commonwealth, by checking the rapid decline of the lobster supply and by restoring the lobster to the position it once held as a wholesome and delicious food for the people at large, rather than to permit it to become merely a delicacy for the tables of the rich.

From the scientific point of view I find that the cause of the decline appears to be a simple one, viz., that we are catching the wrong lobsters. We should protect the adults instead of the young. In most other industries which furnish food for man we use the scientific and therefore common-sense practice of keeping adult plants and animals for seed and breeders, and use the young as food; as, for example, in the case of the domestic fowl, geese, turkeys, ducks, pigeons, cattle, pigs, etc., and with lettuce, cabbage, beets, turnips, sweet corn and other garden vegetables. In other cases, where there is an over-supply of mature plants or animals, we save "enough for seed" and eat the others, — wheat, corn, potatoes, sheep, etc. In many other cases besides that of the lobster the neglect to follow this rule has led

to a noticeable decline, viz., in trout, game, clams, etc., and in time protection of adults must probably be applied to all useful species.

It is believed that this report will show the correctness of some at least of the opinions of those who favor a close season; and of some of the opinions of those who favor a 9 or a 10½ inch law; and by indicating how these various opinions should be reconciled and brought together in one law based upon science and a knowledge of human necessities, as well as of the natural history of the lobster, some small service may have been performed.

Respectfully yours,

GEORGE W. FIELD.

EVIDENCE OF THE DECLINE.

Convincing evidence of the decline of the lobster supply meets any one who makes an unbiassed canvass of the question, or even compares the conditions in 1880 and 1901. Trustworthy figures show that the annual catch in the United States has diminished from 31,000,000 pounds in 1889 to 15,000,000 pounds in 1899, — a loss of 52 per cent. This loss is borne directly by the fishermen. Meantime, the cost at first hand to the consumer has more than doubled, — a burden which falls upon the people who should use lobsters as food or bait, while at the same time this increased price does not make good the loss to the fishermen.

The continued shrinkage of the lobster crop aroused serious apprehension as early as 1874. Discussions as to ways and means to check the decline and remedy the defects, even then already evident, crystallized into legislation. The present lobster laws came into existence for the definite purpose of maintaining an adequate supply of lobsters for the local population. The persons immediately interested are not fishermen and lobster dealers alone, but the entire population. It is not, therefore, a question to be dealt with upon personal or selfish grounds, either in the interest of certain individuals or classes or communities. Action should be based upon broad and correct economic principles, upon scientific practice and common sense, upon definite and adequate knowledge of the value of the lobster as a commodity and a food, of the possibilities and legitimate demands of the lobster industry, of the conditions imposed by the natural history of the lobster, and of the laws of human economy, rather than upon any merely transitory, arbitrary, personal, local or political considerations.

CAUSES OF THE DECLINE.

The causes of the growing scarcity and the yearly diminishing average size of the lobsters caught are found in: (1) *The natural demand*, arising from an increasing population and from the stimulus

of culinary ingenuity, resulting in salads and the chafing dish. This legitimately increased *demand has not been met by a correspondingly increased source of supply.* (2) *The existing laws*, for the reason that the destruction of adults has been permitted. The present laws, with their practical difficulties of enforcement, have had an adequate trial. The decline of the lobster industry demonstrates that these laws have proved inefficient for increasing or even for maintaining the supply, and for the bettering of the conditions to meet which these laws were instituted. The chief defect of the present laws seems to lie in permitting the destruction of adults.

That the industry is one which is worthy of the deepest concern and most careful consideration is evinced by the magnitude of these fisheries, the financial returns therefrom, and by the widespread interest, and even solicitude, of the public, when the facts of the decline of the industry and the growing scarcity of lobsters become unmistakably evident. The statistics of the United States Fish Commission for 1900 indicate that in New England and New York State 4,348 men gained a livelihood from the lobster trade; and that the value of the catch at first hand was \$1,390,579 in Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut and New York. But in addition to those directly engaged in the industry practically the entire population is immediately interested in the lobster either as a source of income or as a delicious food. The class numerically and financially most interested is the great consuming public, because it is to-day compelled to pay four or five times the price current thirteen years ago, and too often is forced to forego altogether this wholesome and palatable food, which was formerly readily available to the workingman. Man himself has made the lobster to-day a rich man's delicacy; while the total financial returns to the fishermen have, on the average, constantly diminished, at least in Massachusetts, for the reason that the increased scarcity has more than wiped out the profit from the increased selling price, and to-day intelligent and honest fishermen are finding themselves deprived of a means of livelihood by the failure of the lobster fishery. It is to protect these men who already have time and money invested in the lobster industry, and above all the consuming public, that adequate laws have become necessary.

SUGGESTIONS FOR REMEDIAL LEGISLATION.

Of the suggestions for legislation to check this decline, seven, either singly or in combination, appear to be especially prominent: —

1. A close season for a portion of each year, or for a term of years.
2. The continuance of the present 10½ inch law, under more effective enforcement.

3. The substitution of a 9 inch law.
4. The prohibition of the killing of egg-bearing lobsters.
5. The prohibition of the killing of any female lobsters.
6. The removal of all restrictions as to catching.

And finally, as an entirely new proposition, which I personally venture to advance, —

7. The protection of *all adult* lobsters above the breeding age, and the removal of restrictions on the catching of the immature which are of satisfactory marketable size.

It is self-evident that a just and adequate law should be one which meets the most requirements, wherever identical conditions obtain; and if such a law can be devised, the chances of securing uniform legislation throughout the lobster-producing districts will be vastly improved.

An impartial balancing of the merits and defects of the several propositions is here attempted: —

1. *A Close Season.* — (a) For a portion of the year. This is usually the first resort, based on the argument that, inasmuch as a decline is caused by the killing of too many individuals, a close season must tend to restrict the number killed; and if the killing is entirely prohibited during the breeding season, the number of young which may be produced is likely to be increased. A close season may bring very manifest and satisfactory results in cases when the animal is a rapid breeder, or where the young reach maturity in a short time, say within one year. But it is by no means safe to argue that therefore a close season is equally applicable for checking the numerical decline of every, or any particular, animal. This is notably true of the lobster. A close season must fail to bring the expected results, for the reason that the lobster is a slow breeder, laying eggs but once in two years, and carrying these eggs, attached to the modified legs under the abdomen, for ten or eleven months after laying; while the young require probably from four to seven years to reach maturity and to attain a length of 7 to 10 inches.

Even in Massachusetts there may be practical difficulties in deciding upon a date for beginning and ending the close season, on account of the various opinions as to how long such a close season should be, and from the fact that the lobster catching begins south of Cape Cod earlier than it does on the north shore. This ground for discord increases somewhat if the regions for which uniform laws are necessary are as far separated as New York and Newfoundland.

Further, since the lobster breeds but once in *two* years, and carries the eggs from ten to eleven months after laying, it manifestly can make no difference to the race whether the young are destroyed as unlaidd eggs, as eggs recently laid or as eggs just on the eve of hatch-

ing. The chief value of the close season to the lobster is that fewer lobsters may be caught; but the lobstermen and the public bear the burden, while the lobster does not get a commensurate benefit.

A further defect of a close season during a portion of the year is the fact that the lobster is especially convenient for human food during the warm season, and there has been found thus far no satisfactory substitute; the cost and practical difficulties of transportation, apart from other considerations, shut out for the present the crayfish, crabs, shrimps and the spiny lobster of our southern coast.

Finally, the fundamental defect of a close-season law is that it restricts the demand but does not adequately and economically increase the supply. The aim of sound economic legislation should be to increase the supply without limiting the demand. Laws prescribing close seasons, restrictions in times and methods of catching, prohibition of canning or otherwise limiting the demand should be the last resort, and then only after it has been found that efforts to increase the supply are futile.

Aside from the practical difficulties of securing a close season throughout the lobster range, and enforcing the laws, the value of the close season to the lobster as a race is commensurate with the duration of this close season. The longer it extends, the better for the lobster but the worse for man. The burden upon investments in the lobster fisheries is increased. The absence of the lobster from the human food supply is felt by the public. Yet all this is of little avail, for the effects of the close season are not permanent. The causes of the decline have not been removed. The lobsters, through a close season, either from one to six months each year, or for a continued series of years, may have a chance to "catch up," only to be themselves "caught up" with redoubled energy, resulting in a glutted market, and consequent economic waste for a time, with the certainty of a rapid return to the former conditions which made a close season necessary.

(b) Close season for a term of years. Most of the foregoing statements apply also to a close season of a term of years. The primary inherent defects in the close season are that it does not reach the cause of the decline, and it fails to recognize the fact that the lobster can and should be reckoned as a perennial and perpetual food for man. Human efforts can so control conditions that the supply may be large or small. In my opinion, by taking proper measures the lobster supply can be made abundant and continuous, instead of intermittent.

2 and 3. *Continuance of Present Length Law or Substitution of Another.* — The 9 and 10½ inch laws are the ones which have met widest favor. They are identical in inconvenience of application and

in difficulty of enforcement. So far as aiding the maintenance of the lobster supply, the advantage is with the $10\frac{1}{2}$ inch law, for the reason that it gives the lobster a chance to breed once or perhaps twice more than does the 9 inch law. Further, the 9 inch law exposes to capture a greater number of individuals, and is therefore the worse for the lobster and better for man. "The worse for the lobster" must, however, be interpreted as being also worse for the future of the fishery; and "the better for man" understood as better only in a purely selfish sense,—better to-day, but plainly discounting the future, and tending to remove the lobster from our list of available foods.

Neither the 9 inch law in New York, the 9 inch and "female lobster with spawn attached" in Connecticut, 9 inch and a closed season in Rhode Island, $10\frac{1}{2}$ inch in Massachusetts, $10\frac{1}{2}$ inch and "female lobsters while carrying their spawn or hatching their young" in New Hampshire, $10\frac{1}{2}$ inch since 1897 in Maine, nor the $10\frac{1}{2}$ inch and a closed season from June 30 to January 14 in the Maritime Provinces, has prevented the continued rapid decline in (1) the number of lobsters caught, (2) the average size of the lobsters caught, (3) the average number of egg-bearing females reported, (4) the number of persons who can depend upon the fisheries for support, or (5) has checked the rapid rise in the price of lobster meat.

Further, these laws have been found by experience to be difficult of application and expensive in enforcement and alike disagreeable to officer and offender. The comparatively unimportant difference in the size limits (9 inches and $10\frac{1}{2}$ inches) has led to considerable local excitement, petty bickering and jealousies, and not a little "practical politics," with unfortunate results.

The sole apparent merit of this law seems to be that it does prevent the catching of some lobsters; just how many is dependent upon the honor of the fishermen and the means of enforcing the law. Its greatest defect, and from a scientific point of view an irreparable one, consists in the fact that it affords no protection to those lobsters which most need protection,—the mature breeding individuals,—but rather puts a premium on their capture through tacitly specifying that only adults *above* the breeding age shall be killed. What would be the effect upon our supply of poultry and eggs if a law should be made "protecting" poultry under one year, or under a certain size or weight? It absolutely ignores the biological laws which man has found by experience to be of utmost importance whenever it has become necessary to increase the natural food supply to meet the increasing population,—the protection of the adult animal in order to secure a supply of young of that species.

Some of these biological principles which should be considered in this connection are :—

(a) Human experience indicates that the world's demand for food is continually increasing. This condition must be met by increasing the supply rather than by limiting the demand.

(b) Man is a particularly destructive agent when he comes as an enemy of the breeding plant or animal, and almost inevitably upsets the equilibrium of nature and causes a decline in the source of supply (wild food plants and animals), until artificial cultivation or restrictive laws protect the mature breeding plants or animals which alone can maintain the supply.

(c) Man has met these conditions by the domestication of certain plants and animals, and by devising artificial methods of increasing production, through propagation and care of the breeding adults and the growing young.

(d) A basal necessity is either to save sufficient seed to ensure a crop for the following year, or to protect the adult breeding plants or animals to ensure progeny. The plants or animals are used as food only when they are of least value as breeders, — before sexual maturity or during the age of decline, — or when for any reason a local surplus of breeding animals exists.

4. *The Prohibition of the Killing of Egg-bearing Lobsters.* — To prohibit the killing of any egg-bearing lobsters is good legislation so far as it goes, but it is open to the objection that it pushes into prominence the temptation to comb off the eggs, and thus make the lobster a marketable one. It has practical difficulties of enforcement.

5. *The Prohibition of the Killing of Any Female Lobsters.* — The prohibition of the killing of any female lobster would promise more effectiveness were it not for the fact that it involves catching, and a subsequent sorting and liberation. Though this sorting can be done quickly and easily, a lobster in the hand is not willingly parted with, and the temptation is very great to keep every lobster until the proximity of an inspector threatens.

6. *The Removal of All Restrictions as to Catching.* — The proposal to remove all restrictions as to catching lobsters must inevitably lead to destruction of the industry, unless a sufficient artificial supply can be maintained to meet the demand, and thus far this seems impracticable. Certainly satisfactory results have not been reached in the case of the lobster, though further investigation and examination must yield far-reaching results.

7. *The Protection of All Adult Lobsters above the Breeding Age, etc.* — The method of protecting all the adults, and catching only a portion of the young, promises very satisfactory results in the case of the lobster, for the reasons: —

(1) That the period of immaturity is long. Professor Herrick found that the rate of growth varies with individuals and with the

surroundings. At the time of hatching about $\frac{1}{8}$ of an inch long (7.84 mm.), the young increases at each moult about 15.3 per cent.; moults fourteen to seventeen times during the first year, and after twenty-five to twenty-six moults, in about five years, it becomes a 9 to 10 $\frac{1}{2}$ inch lobster, and reaches sexual maturity,

(2) That the ratio of the biological, *i.e.*, reproductive, value increases very rapidly after the size of 9 to 10 inches has been reached, as shown by Professor Herrick's table. The majority of lobsters begin to lay eggs when 8 to 10 inches long, from 5,000 to 10,000 eggs once in two years; at 12 inches long, about 20,000; at 14 inches long, about 40,000. The largest number of eggs recorded by Herrick is 97,440, for lobsters 15 and 16 inches long.

(3) The number of enemies diminishes very rapidly as the lobster increases in size. The surface-feeding fish swallow the just hatched fry by the thousand. After six or eight weeks the scattered survivors eke out a precarious existence under and among the rocks, a prey to numerous fishes, crabs and even their own brethren. For the next two or three years life is ever full of dangers, particularly from the bottom-feeding fish,—the cod, sea bass, etc.; but the number of enemies becomes rapidly smaller, and if the lobster escapes, and 8 inches is reached, a green old age and a life of biological usefulness through propagating a normal number of descendants are practically certain. Almost the sole enemy is man; but he is worse than all others combined, for he steps in and thwarts nature at the very moment of her triumph. By continued killing of the adults he may exterminate, indeed, he has already wiped out, entire races and species, such as the great auk, Steller's sea cow, etc.

SUGGESTIONS FOR NEW LEGISLATION.

The logical basis, then, for the law necessary to ensure the continuance of our lobster supply, is:—

1. *Protect the adults. Catch only the small lobsters*, not the large ones.

2. Protect enough of the young to ensure a sufficient number of adults.

3. Protect those below a size which experience has shown to be adapted for economic use, say 6 inches.

4. Use only a legal standard pot, having the opening of such size as to prevent the entrance of a lobster say above 9 or 10 inches, and with slats far enough apart and numerous enough to insure the escape of all lobsters less than about 6 inches. Fix a date when all pots shall conform to the standard.

5. Penalize the possession or sale of lobsters above 10 inches and below 6 inches, and of pots not conforming to the legal standard.

6. Discourage the use of the lobster as bait for fish.

7. If possible, combine the above with the longest practicable closed season, for the purpose of permitting the lobster to regain the normal numbers in the shortest time. The protection of adults may then be expected to be effective in maintaining the supply of young, and thus prevent the rapid decrease which would inevitably follow at the end of a close season ; and, by furnishing a continual steady supply, relieve the condition of “either a feast or a famine,” which so often accompanies close-season laws. The prohibition of the taking of any female lobsters, whether with or without eggs, will be an additional advantage.

8. Establish a State committee, to co-operate with similar committees from the other lobster-producing States and the British Maritime Provinces, for considering the advantages and possibilities of uniform lobster laws, for co-ordinated investigations of the important economic facts in the natural history of the lobster, and for devising improved methods of artificial lobster culture. Rhode Island is obtaining very valuable and practical results on some important phases of the question under the direction of Professor Mead.

The chief apparent objections are : —

(1) That such a proposal as has been outlined is too radical, too great a departure from precedents and from the laws in force in other States. To this it may be answered that the existing lobster laws have little common-sense foundation ; they have been based upon misconceptions, and often, no doubt, upon ignorance and local politics ; they are directly contrary to scientific experience, and the continued decline of the lobster industry has proved them to be ineffective for the purposes for which they were instituted. They are based neither upon the laws of human economy or the natural history of the lobster.

(2) It has been claimed that “such laws as those proposed would lead to the capture of all the lobsters.” At first an actually greater number of lobsters would undoubtedly come into the market ; but the increased number of individuals killed would not result in such an increased weight as to materially affect market conditions, and the productive capacity of the protected individuals would be expected to more than offset the apparent loss from the marketing of immature individuals. In other words, the actual value of one adult above 10 inches long in potential productive capacity is many times that of one between 6 and 10 inches long, and man could use as food a larger number of 6 inch lobsters without doing the biological damage which results from the killing of a single lobster of from 9 to 11 inches long, and at the same time have actually a greater weight of lobster meat. If it is feared that under this proposal the lobster

does not get sufficient protection, make the limit still narrower, — say from between 8 or 9 inches to 6 inches.

(1) Such a law would be relatively easy of enforcement, through the inspection of lobster pots.

(2) It would work a minimum injury to vested interests, since sufficient time can be given to make all pots conform to the standard.

(3) It does not remove the lobster from the market, and so does not interfere with the immediate or future interests of fishermen, dealers and consumers.

(4) By protecting those lobsters which are of greatest biological value the interference with natural laws of increase is minimized.

(5) It furnishes a basis for uniform legislation throughout the lobster-producing section. Being based upon common sense, and in close conformity with the natural history of the lobster and with human scientific experience in food supplies, it commends itself to fishermen and others who know human nature and the lobster in a practical way.

Finally, the proposed law, while fundamentally scientific, is eventually a compromise measure, and combines the advantages (1) of a close season throughout the year for a part of the lobsters (*i.e.*, for those productive adults above a size to be agreed upon) and (2) of the size limit, thus meeting the wishes of the believers in both the 10½ and 9 inch laws. It seems to promise effectiveness in meeting existing conditions and in checking the decline. It is adapted for ready enforcement without resort to methods distasteful to officers and people, and at a minimum expense to the State.

[C.]

DISTRIBUTION OF FOOD FISH.

BROOK TROUT FRY.

Winchester Hatchery, April and May, 1901.

APPLICANT.	Name of Waters.	Town.	Number.
Clarence P. Abbott, . . .	Brown Brook, . . .	Groveland, . . .	5,000
Isaac D. Pope, . . .	-	Danvers, . . .	5,000
Nelson J. Cole, . . .	Taylor's Brook, . . .	Acton, . . .	5,000
Nelson J. Cole, . . .	Rocky Brook, . . .	Acton, . . .	5,000
Nelson J. Cole, . . .	Cemetery Brook, . . .	Acton, . . .	5,000
Nelson J. Cole, . . .	Law Brook, . . .	Acton, . . .	5,000
Geo. W. Alcott, . . .	Flint Brook, . . .	Tyngsbury, . . .	5,000
Caleb L. Smith, . . .	House Brook, . . .	Chelmsford Centre, . . .	5,000
Richard Taft, . . .	Fay's Brook, . . .	Dracut, . . .	5,000
Chas. O. Hall, . . .	Richardson Brook, . . .	Dracut, . . .	5,000
Geo. L. Huntoon, . . .	Double Brook, . . .	Dracut, . . .	5,000
Geo. B. Clark, . . .	Trap Hole Brook, . . .	Walpole, . . .	10,000
J. E. Plimpton, . . .	Lewis Brook, . . .	Walpole, . . .	5,000
Jas. H. Jones, . . .	Moonakis Brook, . . .	Falmouth, . . .	10,000
E. J. S. Miller, . . .	Robbin's Brook, . . .	Concord Junction, . . .	10,000
H. F. Hathaway, . . .	Elm Brook, . . .	Bedford, . . .	10,000
Oscar I. Stowell, . . .	Meadow Brook, . . .	Lynnfield, . . .	15,000
Geo. G. Rogers, . . .	Wine Brook, . . .	Burlington, . . .	5,000
Wm. H. Keleher, . . .	Clapp Mill Stream, . . .	Woburn, . . .	5,000
Jas. F. Dogherty, . . .	Citizen's Brook, . . .	Woburn, . . .	5,000
Arthur P. Dickson, . . .	Amesee Brook, . . .	Woburn, . . .	5,000
Jas. E. Bowtell, . . .	Seward Brook, . . .	Woburn, . . .	5,000
Walter D. Lepper, . . .	Jericho Brook, . . .	Marlborough, . . .	5,000
Roswell Wetherbee, . . .	Smith Brook, . . .	Lincoln, . . .	5,000
Geo. H. Sweetman, . . .	Elm Brook, . . .	Bedford, . . .	10,000
A. B. Clark, . . .	Hodkin's Brook, . . .	Ipswich, . . .	10,000
Chas. A. Wiggin, . . .	Goldthwait's Brook, . . .	Peabody, . . .	5,000
Samuel Parker, . . .	Saugus River, . . .	Wakefield, . . .	10,000
D. J. Wetherbee, . . .	Nashoba Brook, . . .	Acton, . . .	10,000
Arthur E. Roberts, . . .	-	Reading, . . .	10,000

Sutton Hatchery.

W. H. Gale, . . .	Hedge Brook, . . .	Warwick, . . .	5,000
F. L. Hagar, . . .	Beman Brook, . . .	Winchester, . . .	5,000
J. S. Ames, . . .	Peter's Hill Stream, . . .	Hubbardston, . . .	10,000
E. J. McKnight, . . .	Cook's Brook, . . .	Templeton, . . .	5,000
Wm. Pratt, . . .	Bailey Brook, . . .	Gardner, . . .	5,000
A. E. Knowlton, . . .	Poor Farm Brook, . . .	Gardner, . . .	5,000
M. M. Lawler, . . .	Perley Brook, . . .	Gardner, . . .	5,000
John L. Sweeney, . . .	Bailey Brook, . . .	Templeton, . . .	5,000
L. G. McKnight, . . .	Cole Meadow Brook, . . .	Gardner, . . .	5,000
F. J. Pierce, . . .	Foster Brook, . . .	Gardner, . . .	5,000
Homer R. King, . . .	Tatnuck Brook, . . .	Worcester, . . .	10,000
Homer R. King, . . .	Fessenden Brook, . . .	Paxton, . . .	5,000
Geo. L. Gill, . . .	Carpenter Brook, . . .	Northbridge, . . .	5,000
Arthur F. Randles, . . .	Northbridge Brook, . . .	Northbridge, . . .	5,000
Arthur F. Whitin, . . .	Prentiss Brook, . . .	Northbridge, . . .	5,000
H. W. Rogers, . . .	Mill Brook, . . .	Upton, . . .	5,000
Edward E. Whiting, . . .	Mechanics Street Brook, . . .	Upton, . . .	5,000
Patrick Shaughnessy, . . .	Pudding Street Brook, . . .	Upton, . . .	5,000
Jos. P. Love, . . .	Potash Brook, . . .	Dudley, . . .	10,000
E. H. Vaughn, . . .	Sugar Brook, . . .	Prescott, . . .	10,000

Sutton Hatchery — Concluded.

APPLICANT.	Name of Waters.	Town.	Number.
N. W. Packard,	Bell Brook,	Oakham,	10,000
W. N. Boylston,	Station Brook,	Princeton,	10,000
Samuel E. Hull,	Purgatory Brook,	Sutton,	10,000
Charles L. Allen,	Barber Brook,	Worcester,	10,000
John G. Hagberg,	Reidl's Brook,	Worcester,	10,000
Clarence C. Wood,	Sudbury River,	Hopkinton,	10,000
J. D. Stewart,	Indian Brook,	Hopkinton,	10,000
John B. Ripley,	Blandford Brook,	Chester,	10,000
Geo. H. Hapgood,	Abbott Brook,	Chester,	10,000
A. W. Hitchcock,	Sandy Mill Brook,	Westfield,	5,000
C. A. Pierce,	Hundred Acre Brook,	Westfield,	5,000
J. B. Hazelton,	Great Brook,	Westfield,	5,000
L. H. Bowers,	Noble Brook,	Westfield,	5,000
Robert L. Soper,	Kellogg's Brook,	Westfield,	5,000
H. T. Snow,	Powder Mill Brook,	Westfield,	5,000
Chas. N. Lewis,	James Brook,	Westfield,	5,000
E. G. Clark,	Hollister Brook,	Westfield,	5,000
F. F. Shephard,	Timber Swamp Brook,	Westfield,	5,000
E. B. Crane,	White Brook,	Westfield,	5,000
Alfred Read,	Cold Spring Brook,	Westfield,	5,000
John M. Santer,	Oak Orchard Brook,	Westfield,	5,000
Robert L. Parks,	Black's Brook,	Russell,	10,000

Hadley Hatchery.

J. W. Hill,	Mill River Brook,	Williamsburg,	5,000
A. M. Lyman,	Creamery Brook,	Montague,	5,000
Geo. A. Elder,	Roaring Brook,	Whately,	5,000
Geo. A. Elder,	Potash Brook,	Whately,	5,000
M. E. Fitzgerald,	Swamp Brook,	South Hadley,	5,000
B. C. Brainard,	Castleborough Brook,	South Hadley,	5,000
Geo. Hofmann,	Stony Brook,	South Hadley,	5,000
Peter Welcker,	Leaping Well Brook,	South Hadley,	5,000
Thos. F. Buckley,	Elmer's Brook,	South Hadley,	5,000
A. H. Hoadley,	Bachelor's Brook,	South Hadley,	5,000
F. E. White,	Bachelor's Brook,	South Hadley,	5,000
A. D. Cooke,	Goepel Brook,	South Hadley,	5,000
R. W. Aldrich,	Buffum Brook,	Pelham,	5,000
E. P. Bartlett,	Amethyst Brook,	Pelham,	5,000
J. R. Anderson,	Cooke Brook,	Pelham,	5,000
E. B. Dickinson,	Purgatory Brook,	Pelham,	5,000
Jas. F. Page,	Taylor Brook,	Amherst,	5,000
T. R. Hill,	Russell Brook,	Amherst,	5,000
F. E. Hawkes,	Packard Brook,	Goshen,	5,000
M. W. Smith,	Roger's Brook,	Goshen,	5,000
W. A. Smith,	Highland Brook,	Goshen,	5,000
Lewis F. Gayler,	Beaver Brook,	Northampton,	5,000
Ed. P. Feiker,	Mosquito Hollow Brook,	Northampton,	5,000
Adolph Sweeney,	Turkey Hill Brook,	Westhampton,	5,000
Edward Miller,	Main Brook,	Westhampton,	5,000
Arthur Eagan,	Pomeroy's Brook,	Easthampton,	5,000
Jas. Longdon,	Parson's Brook,	Easthampton,	5,000
H. C. French,	Running Gutter Brook,	Hatfield,	5,000
Samuel Spencer,	Broad Brook,	Hatfield,	5,000
Chas. R. Brewster,	West Brook,	Williamsburg,	5,000
John Martin,	Robert's Meadow Brook,	Williamsburg,	5,000

Adams Hatchery.

C. J. Russell,	Lively Brook,	Colrain,	5,000
C. J. Russell,	Hockanum Brook,	Colrain,	5,000
C. J. Russell,	Roberts Brook,	Colrain,	5,000
C. J. Russell,	Bell Brook,	Colrain,	5,000
Jas. Sanders,	Benton Brook,	Otis,	10,000
J. W. Sweet,	Machine Shop Brook,	Tyringham,	5,000
John P. Quigley,	Roaring Brook,	Lee,	5,000
J. L. Hover,	Flat Brook,	West Stockbridge,	10,000

Adams Hatchery — Concluded.

APPLICANT.	Name of Waters.	Town.	Number.
Frank S. Clark,	Wadham's Brook,	Richmond,	10,000
F. C. Downing,	Sachem Brook,	Lanesborough,	10,000
F. H. Pierce,	Pierce Brook,	Windsor,	10,000
E. H. Pierce,	White Brook,	Windsor,	5,000
W. C. Flounsbrough,	Flint Rock Brook,	Dalton,	10,000
W. M. Cooper,	Anthony Brook,	Dalton,	5,000
Wesley D. Barton,	Barton Brook,	Dalton,	5,000
Chas. W. Nims,	Fiske Brook,	Shelburne,	10,000
E. C. Hawkes,	Trout Brook,	Charlemont,	10,000
Willard E. Hoyt,	Hopper Brook,	Williamstown,	10,000
Sandborn G. Tenney,	Sweet Brook,	Williamstown,	10,000
A. A. Shipper,	Langdon Brook,	Rowe,	10,000
C. M. Pettingill,	Mitchell Brook,	Cummington,	5,000
C. M. Pettingill,	Crosby Brook,	Cummington,	5,000
C. M. Pettingill,	Shaw Brook,	Cummington,	5,000
C. M. Pettingill,	Warner Brook,	Cummington,	5,000
H. S. Packard,	Cole Brook,	Plainfield,	10,000
Geo. F. Sayles,	Tophet Brook,	Adams,	10,000
Wm. P. Martin,	Fiske and Bolton Brooks,	Adams,	10,000
A. W. Safford,	Patton Brook,	Adams,	10,000
F. H. Burr,	Ringville Brook,	Worthington,	10,000
Total trout fry distributed,			865,000

YEARLING AND FINGERLING PLANTS — 1901.

Yearling Brook Trout.

Edward T. Hull,	Rattle Snake Brook,	Stockbridge,	1,000
J. H. Casey,	Green Water Brook,	Lee,	1,000
H. H. Thompson,	Joyner Brook,	Egremont,	1,000
A. M. Nichols,	Sherman Brook,	North Adams,	1,000
A. M. Nichols,	Hudson Brook,	Clarksburg,	1,000
H. W. Barton,	Benton and Barton Brooks,	Dalton,	1,000
George F. Ide,	Spring Brook,	Attleborough,	1,000
William W. Norbery,	Moffat Brook,	Northbridge,	500
H. A. Mower,	Lynde Brook,	Leicester,	1,000

Fingerling Brook Trout.

J. F. Mitchell,	Bummit Brook,	Grafton,	250
E. A. Bridgeman,	Meadow Brook,	Grafton,	250
H. W. Rogers,	Mill Brook,	Upton,	250
E. E. Whiting,	Mechanic Street Brook,	Upton,	250
P. Shaughnessy,	Pudding Street Brook,	Upton,	250
W. C. Knowlton,	Bummit Brook,	Shrewsbury,	250
F. W. Cowles,	White Brook,	West Brookfield,	500
H. F. Snow <i>et al.</i> ,	Sandy Mill Brook,	Westfield,	2,700
L. O. Coburn <i>et al.</i> ,	Powder Mill Brook,	Westfield,	
C. A. Pierce <i>et al.</i> ,	White Brook,	Westfield,	
George Bowers <i>et al.</i> ,	Great Brook,	Westfield,	
H. C. French <i>et al.</i> ,	Running Gutter Brook,	Northampton,	2,700
Dana Pearson <i>et al.</i> ,	Parsons Brook,	Northampton,	
Samuel Spencer <i>et al.</i> ,	Broad Brook,	Northampton,	
Charles W. Nims <i>et al.</i> ,	Fisk and Barton Brooks,	Greenfield,	
R. C. Burrell <i>et al.</i> ,	Bread and Cheese Brooks,	Westport,	1,350
Dana C. Everett,	Shingle Island Brook,	Westport,	450
Thomas Rice,	Ledge Brook,	Freetown,	450
A. W. Cummings,	Line Brook,	Assonet,	450
H. C. Hunter <i>et al.</i> ,	Milham Brook,	Marlborough,	2,700
E. W. Lindley <i>et al.</i> ,	Flag Brook,	Marlborough,	
F. W. Larabee <i>et al.</i> ,	Bartlett Brook,	Marlborough,	
Charles M. Kimball <i>et al.</i> ,	Houghtons Brook,	South Acton,	
T. R. Hill,	Hearthstone Brook,	Amherst,	2,700
H. B. Perry,	Hop Brook,	Amherst,	
L. H. Dickinson,	Montague Brook,	Amherst,	
J. F. Page,	Taylor Brook,	Amherst,	
J. W. Harlow,	Swift River Brook,	Amherst,	

Fingerling Brook Trout—Concluded.

APPLICANT.	Name of Waters.	Town.	Number.
C. J. Russell,	Bill and Mountain Brooks, .	Colrain, . . .	2,700
C. J. Russell,	Spur and Foundry Brooks, .	Colrain, . . .	
F. M. Smith,	Leaping Well Brook, . . .	South Hadley, .	
T. F. Buckley,	Goepel Brook,	South Hadley, .	2,700
B. C. Brainerd,	Elmer Brook,	South Hadley, .	
George Hofman,	Buttery Brook,	South Hadley, .	
F. E. White,	McGrath Brook,	South Hadley, .	1,800
M. L. Welcker,	Stony Brook,	South Hadley, .	
J. W. Jackson <i>et al.</i> ,	Plaster Mill Brook,	Belchertown, .	
A. A. Edwards,	Waite Corner Brook,	North Brookfield, .	1,800
G. S. Dickinson,	Horse Pond Brook,	North Brookfield, .	
W. E. Hobbs,	Bigelow Brook,	North Brookfield, .	
T. J. Manly,	Lake Quacumquasit,	North Brookfield, .	900
Charles L. Allen,	Barber Brook,	Worcester, . . .	
Homer R. King,	Paxton Brook,	Paxton,	
John G. Hagberg,	Reidl's Brook,	Worcester, . . .	900
I. F. Williams,	Dunleary Brook,	Uxbridge,	900
Rufus B. Dodge,	Gould Brook,	Charlton,	900
G. A. Bigelow,	Cogg Brook,	Princeton,	450
A. B. Fisher,	Mill Brook,	Rutland,	450
Wm. E. Healy,	Poor Farm Brook,	Rutland,	450
H. W. Rogers,	Mill Brook,	Upton,	450
E. E. Whiting,	Mechanic Street Brook,	Upton,	450
A. S. Noyes,	Northbridge Brook,	Northbridge,	450
A. F. Randles,	Dudley Brook,	Northbridge,	450
George L. Gill,	Carpenter Brook,	Northbridge,	450
R. C. Pierce,	Barton Brook,	Dalton,	450
H. A. Barton,	Benton Brook,	Dalton,	900
D. P. Waters,	Spaulding Brook,	West Peabody,	900
F. L. Wilkins,	Alewife Brook,	Gloucester,	900
H. S. Noyes,	Water Works Brook,	Newburyport,	900
George N. Goff,	Palmer's River,	Rehoboth,	900
Wm. P. Martin,	Axtell and Ballow Brooks,	Adams,	900
George F. Sayles,	Tophet Brook,	Adams,	900
Total brook trout fingerlings distributed,			44,750

The following brooks were stocked with brook trout yearlings in 1901, and closed under chapter 284, Acts of 1900:—

	Number.
Argella Brook, Groveland,	2,000
Flat Brook, Ware,	1,000

In addition to the above, the following fish have been put into ponds, mostly for stocking them in accordance with chapter 208, Acts of 1897; 2,600,000 pike perch fry, 15,000 rainbow fingerlings, 586 Loch Leven yearlings, 13,000 landlocked salmon, fingerlings and 250 four-year-old brook trout.

The total output of fish for the year, not including about 3,000 fingerlings yet to be distributed, is 3,550,086, of which 12,086 were yearling trout, and 72,750 were fingerlings.

[D.]

DISTRIBUTION OF PHEASANTS.

Pheasants were liberated in the covers in various sections of the State, as indicated in the following list, which also embraces the names of applicants for the distribution of these birds:—

Howard Marston,	Centreville.
Walter D. Bullock,	Fall River.
J. C. Shaw,	New Bedford.
H. E. Richardson,	West Brookfield.
A. D. Norcross,	Monson.
J. H. Whitecomb,	Ayer.
William Leonard,	East Foxborough.
J. B. Brown,	Ipswich.
H. E. Richardson,	Littleton.
Charles M. Kimball,	South Acton.
E. B. Stoddard,	Worcester.
F. S. Dewey,	Westfield.
E. E. Whiting,	West Upton.
Clifton R. Bridges,	North New Salem.
C. E. Childs,	North Adams.
Frank Gerrett,	Greenfield.
Alexander S. Jenney,	Weston.
Henry Riddell,	Nantucket.
I. M. Small,	Truro.
Supt. Middlesex Fells,	Melrose.
F. M. Smith,	South Hadley.
T. R. Hill,	Amherst.
J. C. Shaw,	New Bedford.
A. M. Lyman,	Montague.
C. M. Pettingill,	Cummington.
Cyrus W. Taft,	Whitinsville.
Theodore Bates,	Worcester.
William H. G. Wight,	Lowell.
Selectmen,	Orleans.
William B. Phinney,	Lynn.
Henry W. Peabody,	Salem.
Arthur Clark,	Dedham.
Joseph P. Love,	Webster.

George F. Day,	.	.	.	.	.	Uxbridge.
Dr. E. M. Barstow,	.	.	.	.	.	Wrentham.
A. D. Norcross,	.	.	.	.	.	Monson.
J. E. Tweedy,	.	.	.	.	.	North Attleborough.
Clarence P. Abbott,	.	.	.	.	.	Groveland.
John Kenrick,	.	.	.	.	.	South Orleans.
Arthur E. Newcomb,	.	.	.	.	.	Ware.
Frank A. Shiner,	.	.	.	.	.	Franklin.
J. Myron Moore,	.	.	.	.	.	Gardner.
Arthur E. Roberts,	.	.	.	.	.	Reading.
Fred S. Lufkin,	.	.	.	.	.	Gloucester.
H. C. French,	.	.	.	.	.	Northampton.
Rep. George F. Leslie,	.	.	.	.	.	Waltham.
Henry M. Knowles,	.	.	.	.	.	New Bedford.
Tobias H. Burke,	.	.	.	.	.	Quincy.*
Daniel A. Goodwin,	.	.	.	.	.	Newburyport.
James W. Sargent,	.	.	.	.	.	Kingston.
Alton D. Elmer,	.	.	.	.	.	Northfield.
J. W. Jackson,	.	.	.	.	.	Belchertown.
A. K. Lincoln,	.	.	.	.	.	Plainfield.
Selectmen,	.	.	.	.	.	Falmouth.
Selectmen,	.	.	.	.	.	Harwich.

* The pheasants supplied on the application of Mr. Burke were liberated on the Blue Hill Reservation.

[E.]

DISTRIBUTION OF BELGIAN HARES.

Belgian hares have been liberated in the covers as indicated in the following list, in compliance with applications received from the persons whose names appear:—

Arthur E. Newcomb,	.	.	.	.	.	Ware.
H. C. French,	.	.	.	.	.	Northampton.
Arthur E. Roberts,	.	.	.	.	.	Reading.
E. J. S. Miller,	.	.	.	.	.	Concord.
Henry W. Peabody,	.	.	.	.	.	Monserat.
Antonia Sylvia,	.	.	.	.	.	Gloucester.
Selectmen,	.	.	.	.	.	Harwich.
Henry G. Ford,	.	.	.	.	.	Marshfield.
D. W. Johnson,	.	.	.	.	.	Marlborough.
I. M. Small,	.	.	.	.	.	Truro.
Arthur L. Staples,	.	.	.	.	.	Greenfield.
J. E. Marvell,	.	.	.	.	.	West Wareham.
Arthur Clark,	.	.	.	.	.	Dedham.
A. E. Ward,	.	.	.	.	.	Woodville.
Wm. B. Phinney,	.	.	.	.	.	Lynn.
Arthur W. Beckford,	.	.	.	.	.	Danvers.
Clarence P. Abbott,	.	.	.	.	.	Groveland.
Charles M. Kimball,	.	.	.	.	.	South Acton.
Benjamin F. Smith,	.	.	.	.	.	Andover.
Theodore C. Bates,	.	.	.	.	.	Worcester.
F. M. Smith,	.	.	.	.	.	South Hadley.
C. C. Childs,	.	.	.	.	.	North Adams.
T. R. Hill,	.	.	.	.	.	Amherst.
Louis M. Hauff,	.	.	.	.	.	Rutland.
J. Myron Moore,	.	.	.	.	.	Gardner.

[F.]

REPORTS OF PAID DEPUTIES.

The following extracts from the annual reports of the regular salaried deputies, and from special deputies, who have served a portion of the year as paid officials, are placed together in this classification. Two of these reports are from local deputies, with restricted responsibilities, one of them being in charge of Mill Pond, at Yarmouth, which has been reserved for the use of the State, and the other having supervision of the fish-way at Lowell. Both of them are charged with the enforcement of laws relating more especially to their respective charges, but neither of them has made any arrests. In one other case no arrest was made by a special deputy, although he labored zealously and effectively to promote observance of the fish and game laws.

It has been necessary, in editing these reports, to eliminate much of their subject matter, in order to bring them within the limits which will admit of their publication. Generally speaking, this has not changed the character of the information or its scope, although the statements have been made more concise. In some cases, however, it has been deemed necessary to leave out interesting statements, especially those relating to experiences met with in the enforcement of law; but, as the result of this work is summarized in the tabulated statement of arrests, convictions and penalties, the imperative necessity for condensation demanded the action taken. Such action was also required because the paid deputies have generally worked in pairs and groups, and have often had the co-operation of volunteer deputies; therefore the aggregate result must speak for the effort of all in securing it, for it is evident that space will not admit of long explanations or detailed accounts of individual experiences.

Statements by deputies Luman and Rich regarding places visited and distance travelled in the performance of their re-

spective duties will convey some idea of the activity of the salaried officers in the enforcement of law, the distribution of fish, pheasants and Belgian hares, etc. These statements are all the more striking because each of these officers is limited in territorial range, as compared with some others whose duties take them over a large part of the State.

The work of the deputies is, as a matter of course, chiefly the enforcement of law, and often this requires the most earnest and zealous effort every day in the week, and frequently at all hours of night as well as day. But in addition to this they have been called upon to distribute fish, birds and animals; blanks to fishermen; copies of fish and game laws; to collect information of various kinds; to examine and report upon saw-mills and brooks; and to attend to other matters in the interest of the public service. Rapid movement and continuous activity, as a rule, has enabled them to accomplish much for so small a force.

It has been found desirable, for reasons already given, to make no attempt to differentiate the arrests made by the paid and unpaid deputies, and each class of officials is entitled to any credit due on this account.

The total number of arrests made were 156. Of these, convictions were secured in 134 cases, and fines were imposed to the amount of \$1,578.16. To this may be added \$100 paid by Webster Hart for killing a deer in 1900. This was an appealed case.

It is not, however, in the amount paid in to the State as a result of convictions that a true estimate of the value of the service performed can be made; but this must be based chiefly on the almost universal testimony that comes to the commission from all sections of the State, especially from the unpaid deputies, that never before has there been such a respect shown for fish and game laws as now. That there have been violations no one will attempt to deny, but these have been so few (outside of laws relating to the lobster), compared with previous conditions, that the improvement in the observance of such laws is generally and favorably commented upon.

The appropriation for this branch of the service is mentioned elsewhere, as well as other facts relating to the enforcement of law, etc., and those statements need not be repeated here.

YARMOUTH, Nov. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have seen no illegal fishing or gunning, therefore have made no arrests. The only work I have done outside of looking after the pond is going to Sandy Neck with Mr. Rich. . . . Fish and game in this locality, I think, are increasing. . . .

Respectfully,

JAMES A. ELLIS,

Deputy.

PROVINCETOWN, Nov. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . In the enforcement of the laws I have travelled 5,250 miles and visited 34 towns; have liberated 36 pheasants and 40 Belgian hares. . . . The lobster fishery is about the same as past years, and the pheasants are seen often and are doing well on the Cape.

Respectfully,

S. B. RICH,

Deputy.

QUINCY, Nov. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—My first work as special deputy commenced July 9, 1901. On that date Captain Rich and I went aboard the cat-boat "Cyrene," to work Boston harbor and the north shore, looking after violators of the lobster law. For reasons already known to the commission, our trip of two weeks was a failure. After that my work was mostly investigating complaints made of violations of the laws, but I found most of them unfounded. I find the lobster law being violated to a great extent by some of our fishermen all along the coast, especially in Boston harbor and on the north shore. The enforcement of the law can never be effective until the commission has under its control a suitable steam or naphtha launch for that purpose, as the violators mostly live on the islands along the coast.

There has been a fairly good catch of smelts the present season, but their protection should be more rigidly looked after in their spawning season at Weymouth Fore River, Back River, and Hingham Weir River, as they are the most important breeding places in the State.

Quail are quite plentiful; there are some partridges and very few woodcock. The insectivorous and song birds have been plentiful the present season, but their natural enemy, the Italian, has been at them this fall.

Respectfully,

CHARLES N. HUNT,

Deputy.

TAUNTON, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have been at Buzzard's Bay a number of times during the summer, and find that all the fishermen say the lobster was never so scarce as it is at present. . . . Game in this vicinity is increasing. . . . Partridge, quail and rabbits are quite plentiful.

The proximity of the Rhode Island State line makes it difficult to enforce the law here the way that I should like to. Last year I had complaints of three who were hunting for market; this year there was only one of whom I had complaint. Sunday hunting is not bad, although we can improve on present conditions. Three deer have been reported at North Taunton several times.

The sportsmen in this vicinity are very thankful to the commission for stocking Assowampsett Pond with food fish, and are living up to the law.

Respectfully,

HARRY A. DICKERMAN,
Deputy.

LYNN, NOV. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have found this year a strong and growing sentiment in favor of the enforcement of laws relating to the protection of fish and game. Some of the strongest support we have has come from men who are only beginning to realize that there is a Commission on Fisheries and Game that will enforce the laws.

There is very little Sunday shooting going on about here. I have been out every Sunday, when at home, and what Sunday shooters I have found have been shooting at a target.

I have found but one line of snares this fall, and, though I watched for the owner for four days, he did not show up, and I then destroyed the snares.

Game is increasing in this district, quail especially. The Lynn Fish and Protective Association liberated twenty dozen quail last spring in good covers in Lynn, Swampscott, Salem and Peabody. The birds bred well, and the local hunters have had a good season's sport. . . .

Partridges have been quite plentiful in Saugus, Lynnfield, Danvers and Middleton. Pheasants are seen occasionally in our woods. I have reports of large numbers being seen in Danvers, Middleton and Topsfield, — a farming district, — where they seem to do well. Some of my friends who were hunting quail in Danvers one day this fall tell me they were bothered in their sport by their dogs finding pheasants. They started ten or a dozen birds. I have heard of more woodcock

being seen and killed this fall than for a number of years. I think it has been a very successful season for game of all kinds.

The local fishermen have not had a very good season, owing to the dry summer, and one of our best bass ponds being drained off, while another was closed, — that is, the letting of boats on the pond was prohibited, which stopped most of the fishing.

The lobster, which I consider the most in need of protection, is being exterminated by the action of the fishermen, who take all of the small ones which they find in their traps. The enforcement of the lobster laws is very difficult, owing to the methods adopted by the fishermen to evade them, and the support given by owners of hotels at the seaside resorts. Many of the fishermen and dealers whom I have talked with on this question say the only show for the lobster is a close season.

The action of the commission in publishing in the public press the decision of the Attorney-General in regard to the enforcement of the Sunday fishing law has been commended by all fishermen.

Respectfully,

THOMAS L. BURNEY,

Deputy.

LAWRENCE, NOV. 12, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — Suckers and lampreys appeared in the fishway in April. In the month of May and the first part of June there was quite a large run of lampreys. They all disappeared by the last of June. All other fish disappeared as the river lowered and the sewer poured its contents into the pool at the foot of the fishway. Three salmon were seen in the river back of the Farwell bleachery, but no salmon were seen in the fishway or in the pools at the foot of the dam when the river was low, as has often been the case in former years.*

Respectfully,

THOMAS S. HOLMES,

Deputy.

* Writing under date of July 17, Deputy Holmes makes the following statement regarding salmon: "I hear that some salmon were seen in the Shawsheen River, a little way above where it enters the Merrimac, and four were seen back of the Farwell bleachery (about a quarter of a mile below the dam), but I have seen none in the fishway or at the foot of the dam." He also remarks that "with the sewer emptying into the pool where the water runs out of the fishway, I do not think any salmon would enter there." In a supplementary letter written after his report was submitted, he says: "The city of Lawrence has finally cleared out the channel to the sewer, so it runs down the river instead of back to the dam. . . . Now if the fishway was improved a little at the lower end, we might expect a run of fish next year." The sewer referred to has for some time past discharged its contents into the river at or near the foot of the fishway, and the sewerage has polluted the water to such an extent that few fish could approach the fishway. As a result, the utility of the fishway has been much impaired, and fish life has been injured, because migratory species, which come into the river from the pure waters of the ocean to spawn, could not pass through the polluted water at or below the fishway to reach their spawning grounds higher up the stream.

SPENCER, NOV. 10, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have enforced the law in this and other sections of the State where I have been sent to the best of my ability. . . . I have endeavored to use every one with fairness, and shall continue to do so. At the same time, I shall enforce the law fearlessly, with special favors to none. I am satisfied that the commissioners, with the small number of deputies they have, cannot enforce the law as strictly as may be necessary to protect fish and game. . . .

This has been a good year for trout, owing to the high water throughout the season. Partridges are more plentiful this fall than they were last. . . . Quail were never so plenty in Worcester County as they are now.

Respectfully,

A. D. PUTNAM,
Deputy.

PALMER, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Since my appointment in May I have . . . done my best to look after the fish and game interests in this section of the State. . . . I have visited forty cities and towns in the State on official business. I have assisted other deputies, and have stocked various waters with food fish, trout and fry, besides liberating Mongolian pheasants. The cities and towns I have visited during the year are as follows: Springfield, Holyoke, Westfield, Worcester, Quincy, Ludlow, Granby, Wilbraham, Monterey, Spencer, Ware, Gilbertville, Hardwick, Monson, Hampden, Granville, Shelburne Falls, Enfield, Greenwich, Brimfield, North Andover, Southwick, Wales, West Brimfield, North, East and West Brookfield, Belcher-town, Amherst, Hadley, Northampton, Hatfield, Millbury, Warren, West Warren, West Granville, Granville Centre, Oakham, Coldbrook, New Braintree, Barre and Barre Plains.*

Trout fishing in this section the past year has been very good, and some fine catches were made from local streams. The six-inch trout law has caused some dissatisfaction with persons who fish for numbers rather than size. . . . The law is well observed by true sportsmen, who are well pleased with its enactment. . . .

Deer have been more numerous this year than ever. There is scarcely a locality which I have visited where deer have not been

* Comparatively speaking, Mr. Luman's field of work may be considered local; but the simple statement of fact he has made concerning towns and cities visited will serve to show the scope of work devolving upon the paid deputies, and the activity necessary to enforce the fish and game laws, etc. — COMMISSIONERS.

seen. In Granby one woman drove a fine doe into the barn-yard with her cattle.

The past year has been a record breaker for birds and game, and the opening day showed the result of the recent law, prohibiting the sale of birds. Quail and partridge predominate, and from every quarter comes the report that never has there been so many birds as this fall. This fact all attribute to the strict enforcement of law, and to the present law which prohibits the sale of birds. . . . Very little snaring of birds is reported in this section, and what is being done is carried on by persons upon their own land. Sunday hunting has been put a stop to, and in my section, so far as I am aware, very little, if any, is being done.

The stocking of Forest Lake and Round Pond, in Palmer, has been greatly appreciated.

I am pleased to report that the Mongolian pheasants liberated in Monson are doing well. One was killed by a small boy, who did not know what it was.

Regarding the enforcement of the six-inch trout law, in order to have it effective, the deputy should be given the power to search without warrant any basket, bag or other receptacle where fish may be placed, kept or carried.

I can truthfully say that persons are getting better accustomed to the observance of the fish and game laws, and all seem willing to be governed thereby.

Respectfully,

JOHN F. LUMAN,
Deputy.

WARE, NOV. 19, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . There certainly has been a better feeling toward the protection of game and fish than formerly. The people seem to have awakened to the fact that reckless and continual hunting and fishing has only exterminated the supply of both fish and game, and old hunters think the restrictions are all right, and the laws should be enforced. In warning people not to break the law, I have generally found them willing to comply . . . and I have not discovered any serious violations. . . . On the whole, I think there has been a great improvement, and the commission is doing not only a good work, but one that is appreciated by the public.

I have found partridge plentiful, and there is also a goodly number of quail and woodcock. I have seen at least a dozen deer, and some in the near sight of the village.

Trout remain as scarce as ever, and more stocking will have to be

done to make this “speckled beauty” plentiful in our streams or ponds. . . .

Gray squirrels and rabbits are quite plentiful, and seem to be increasing now that they are being protected. I am sure the general public favor the present laws, and that good is resulting from their enforcement.

Respectfully,

DENNIS SHEA,
Deputy.

AMHERST, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I think the fishermen respected the law in regard to short trout. Several brooks have been stocked with trout. . . .

Partridges and squirrels have been plenty. Quail were quite plenty early, but soon disappeared. . . .

I have been in the woods every Sunday except stormy days since the hunting season opened. There has been a great falling off in that kind of sport in the last two years. I find almost all the farmers and members of the Rod and Gun Club are ready to aid me in stopping Sunday hunting.

Respectfully,

DAVID H. TILLSON,
Deputy.

SOUTH HADLEY, NOV. 30, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I feel satisfied that sportsmen are very careful about coming this way for any illegal hunting and fishing, and am sure the Sunday violations are very few, compared with a few years ago.

Respectfully,

F. W. BROCKWAY,
Deputy.

PITTSFIELD, NOV. 15, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . The trout season opened with a very fair showing; also the bird season. There are still a great many partridges, but they are high in the hills. I came across one lot of three pheasants, — the only ones I have seen. We have also quite a few deer, and there are signs of foxes among our birds.

I have been all through the county, and have found very few snares, not more than sixty or seventy in all; and have received very few reports of snaring, which proves that our work is doing some good.

I have not found any one selling birds, but think some sales have been made.

There has been some Sunday shooting, but farmers say it is nothing compared with other years, and they are much pleased with the result of the work as carried on by your Board. . . .

Respectfully,

BENJAMIN F. SMITH,
Deputy.

NORTH ADAMS, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . The trout season in this section of the State has been very good. None of the streams that were stocked last spring have been dry. The sportsmen throughout this section of the State would like to have the sale of trout stopped, the same as game.

Squirrels have been very plenty, and the reports are that there will be a good rabbit season. Partridges have been plenty, and sportsmen report that there have never been so many quail and woodcock as there have been in the south-western part of the State. I have seen but two snares this season, and I think that snaring is a thing of the past in this part of the State. As to the sale of game, I have not heard of a complaint or a violation this season. The pheasants and hares that I released last spring have been seen in a number of places.

There were never so many deer as there have been this year. April 1 a deer was found dead near a brook at South Williamstown. It had been dead some weeks when found; a mark on its neck looked as though it had been shot. April 18 one was found dead by berry pickers on North Mountain, near North Adams. There were no marks on it to indicate that it had not died a natural death. One was chased by a dog into the yard of Mr. Ingalls of Heath, on October 17, and died. . . . During the ten days open deer season in Vermont I kept watch along the line, but heard of no violations on this side.

There is very little hunting on Sunday in this section. We are so near the line that when Sunday hunters start out they generally go into Vermont.

Respectfully,

A. M. NICHOLS,
Deputy.

LENOX, NOV. 14, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— My duties as deputy since June 20 have been in this and adjoining towns. I find here some of the best covers for game there are in New England, but the pot hunter has got in his

work, and up to last spring game was very scarce. The law prohibiting the sale of partridge and woodcock has worked wonders in this section. It is responsible for saving the remnants of the partridge, and putting the violator of the game laws out of business. When the season opened here there was good shooting, . . . and there will be plenty of birds left for seed.

As to the conditions of fish, trout are few, but bass and pickerel fishing has been excellent. . . .

Members of the Lenox Fish and Game Protective Association tell me the fish and game laws have been better observed this year than ever before.

Respectfully,

OTIS THAYER,

Deputy.

[G.]

REPORTS OF UNPAID DEPUTIES.

The extracts from the annual reports of unpaid deputies, which are published herewith, will indicate what has been accomplished by this widely distributed force, by advice, etc., to secure a better observance of the fish and game laws. The specially noticeable feature of these reports is the almost complete unanimity of statement that the laws have been better observed than ever before. Considering the opportunities these officers have for observation, and the interest they feel in promoting an observance of the laws for the protection of fish and game, the statements they make are important and encouraging. They indicate the possibility of securing a respect for such laws in this State, and a recognition of their value to the public, that will place Massachusetts in an advanced position in these regards.

These reports, read in conjunction with those of the paid deputies, give a rather comprehensive review of the condition of fish and game throughout the State. On the whole, the record is gratifying. The consensus of statement is to the effect that there has been an increase of the most desirable game species, notably the partridge and quail, although a few claim the former is still very scarce. There is almost universal testimony to the increase and presence of deer, likewise of pheasants.

When it is stated that only 16 of these officers out of 120 made arrests (these for the most part co-operating with paid deputies), that the average moiety of fines received by them was scarcely sufficient to pay the fee for qualification as officers (not to speak of other expenses incurred), and that most of them devoted a considerable percentage of their time to securing a respect for law, it is not difficult to recognize in their efforts a devotion to the public welfare and examples of unselfishness

as rare as they are satisfactory. It is only necessary to read some of the reports to appreciate this.

The large number of reports of this kind has compelled the elimination of all but the most salient points, and those have been made as concise as possible. In a very few instances rather full extracts are published, but these are exceptional. In some cases more than one report appears from the same town, for the reason that the extracts published present some differing phases of fact, or are written by persons more or less widely separated and having diversified opportunities of action and observation, though residing within the same town or city.

In view of all that has been said regarding the avarice and selfishness of this class of officials, it is of public interest to note that there is no foundation for such a claim, as this force is now organized. This is so clearly apparent in the reports that it is beyond argument. A deputy who will spend days and days tramping through covers, watching ponds and distributing copies of fish and game laws, only to warn and advise, or who will refuse to accept his moiety of fine because such action may add a slight expense to his town, certainly cannot be accused of selfishness, whatever else may be said.

The repressive and beneficial influences of this service cannot, nevertheless, be successfully denied. This was shown in connection with the Sunday fishing law. In many places no Sunday fishing was done until it became necessary to desist from the enforcement of the law prohibiting it; but immediately after it was known that the law would not be enforced by the deputy commissioners, fishermen flocked to the ponds, streams, etc., despite the fact that the law was still on the statute books, and local officers had full authority to enforce it.

(1) *Eastern Section of the State.*

NANTUCKET, NOV. 12, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . Mackerel were plentiful. Bluefish were more numerous this summer than last, and codfish are quite abundant in deep water, but the shore fishermen are complaining that there are no codfish on the shoal grounds.

Lobsters were so scarce that I did not go into the business at all, and will never again try the lobster fishery until there has been a

change for the better protection of the lobster. If lobsters are still fished for another season, I hope there will be a paid deputy appointed that will make a strict business of hunting around and enforcing the laws. . . .

I have had no violation of the fish and game laws reported to me, and so have made no arrests. . . .

Respectfully,

EDWARD F. SNOW,
Deputy.

COTTAGE CITY, Oct. 31, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have made no arrests during the past year. . . . I have watched the coast for seiners, but have not seen any, nor have I had any complaints of violation of fish and game laws. . . .

Quail are very plenty and partridge are increasing. . . .

Respectfully,

E. B. ANDRUS,
Deputy.

VINEYARD HAVEN, Nov. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have known of but one violation of the game laws. Evidence was given me of a party shooting a pheasant. I immediately secured a warrant, found the guilty party, and, without trial, he pleaded guilty and paid the full fine and court charges. The bird was shot in the town of Chilmark, in Dukes County. I am pleased to state a farmer made the complaint, the bird having been shot upon his premises. I make this note for the reason that some of our farmers are not favorably inclined towards the pheasants.

Quails are reported more numerous than a year ago; with a favorable winter, we should have a great many next season. The pheasants are doing well. I believe the long open season on rabbits is detrimental to all our game. Game birds are shot by parties in pursuit of rabbits. I should be glad to see the season for rabbits close February 1. I commend this to your consideration.

As far as I know, the fine referred to above is the first one ever paid on this island for killing a pheasant, and I trust the example will be a warning to all persons who do not respect the game laws.

Respectfully,

JOHN E. HOWLAND,
Deputy.

WEST TISBURY, Nov. 18, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I have made no arrests this year. I have carefully investigated several cases, in one instance going so far as to get out

a warrant, but found Deputy Howland had also been notified and had served one. There is a steady increase of pheasants, quail and partridge in this vicinity.

Respectfully,

JAMES LOOK,
Deputy.

CHILTONVILLE, Nov. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have caused no arrests for violation of game laws; have not known of any in this vicinity or elsewhere. . . . I think the laws are respected by all, with possibly a few exceptions.

I am out to Long Pond every day except Sunday. . . . Going out last week one morning I saw two flocks of quail, and a cock and hen pheasant by the roadside. About ten days ago I saw a deer near Little Long Pond. There are quite a number in this section. . . .

Respectfully,

ELKANNAH FINNEY,
Deputy.

CATAUMET, Nov. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have posted in conspicuous places the cloth posters sent me, and have also distributed to hunters the laws which I received. . . . I have had no complaints of law breaking. Fishing has been very good the last season.

Respectfully,

GEORGE W. ROBINSON,
Deputy.

SOUTH SANDWICH, MASS., Nov. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have made no arrests. I do not think there has been any seining done in this vicinity, but am on the watch for it. I have reason to believe that the Mashpee people have been hunting deer, but I have been unable to catch them yet. Except in this particular, I think the laws are being observed at present.

Partridge and quail are increasing in this section. Deer are probably increasing, although it has been so dry that I have not tracked as many as usual on the roads.

Black bass are plenty in Wakeby Lake. There have not been as many pickerel caught as last fall, owing probably to the seining last spring.

Respectfully,

JOHN PERCIVAL,
Deputy.

MARSHFIELD HILLS, Nov. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have not heard a gun on Sunday since the three deputies were down here, for the gunners found we meant business. Partridges are quite plenty, more than has been for a long time, and the quail are very plenty this fall. Fish are about the same.

Respectfully,

THOMAS STACKHOUSE,
Deputy.

COHASSET, Nov. 25, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Quail are not plentiful, still there are some; partridge are about the same; there are plenty of wild ducks and some geese; rabbits are also quite plentiful. There are some foxes and coons. Regarding fish, there are none here which the law forbids taking. . . .

Respectfully,

M. WM. SILVIA,
Deputy.

COHASSET, Nov. 24, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I have had no occasion to arrest any person for violating the fish and game laws. . . . I have had the fishways at Dick's Mill Pond put in a condition for the alewives to pass over the dam next spring.

Last spring I procured from the Massachusetts Protective Association six pairs of quail, which I liberated here, and which have done well. . . . The partridge in this vicinity were few, but there has been an increase in their number since the new law, and I think if the law could remain as it is now for a number of years, they would be quite plentiful. . . .

Respectfully,

W. O. SOUTHER, Jr.,
Deputy.

HINGHAM, Nov. 26, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . During March and April there was no patrol on the rivers by local officers, as the town did not appropriate any money. I spent several nights, and saw no one. . . . The run of smelts was about the same as last year, although the catches have not been as large. Smelt as a rule run small, in comparison with other years.

Quail and partridge were quite numerous this fall. The Italians have bothered some. I got a party of three with guns and dogs after quail. I let them go, with the promise of keeping out of the woods Sundays.

Respectfully,

W. I. JAMES,
Deputy.

WEYMOUTH HEIGHTS, NOV. 25, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I do not find quail and partridge so plentiful as last year. I have made no arrests. . . .

Respectfully,

B. F. RICHARDS,
Deputy.

BRAINTREE, NOV. 1, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . The prevention of Sunday shooting and the enforcement of the lobster laws has occupied my attention. The town of Braintree, in which I live, is now free of Sunday hunters, and in consequence one day has been provided in which it is safe for a citizen and his family to enjoy the woods and fields.

The proximity of that town to the Blue Hills Reservation renders it a natural locality for all birds which inhabit the reservation, and they are becoming more plentiful each season. I have made no arrests, believing that a proper statement of conditions, followed by a word of warning, accomplishes fully as much, and has in addition the effect of educating would-be destroyers to a full realization of the advantages of larger quantities of birds and animals.

I believe that the lobster law should be changed so as to put a close season on them for a number of years, and I believe that the majority of the fishermen will agree that that is the only way to prevent extermination. . . .

Respectfully,

ROBERT E. BELCHER,
Deputy.

PEMBROKE, NOV. 18, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . There has been good fishing all through the open season, the best for many years. Through closing the ponds in the ice season the anglers have had the best season they have ever had, and lots of good fish have been taken.

Game has been very plenty. Quail are very plenty, but lots of

them are not full grown yet. . . . Rabbits are plenty, and the gunners are having a good time. I have not arrested any one, as I have had no occasion to do so.

Respectfully,

OTIS FOSTER,
Deputy.

WEST BRIDGEWATER, NOV. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— It has not been necessary for me to make any arrests, and I have not heard of any violation of the game laws.

Quail and gray squirrels seem to be numerous, but there are very few partridges. There are the usual number of song birds. Pickerel and white perch seem to abound. There have been deer seen in Raynham, about five miles from here.

Respectfully,

D. R. SIMMONS,
Deputy.

NORTH RAYNHAM, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have made no arrests. I have had but one occasion; that was for hunting on Sunday. Then the parties escaped. . . . I believe the game law, as a rule, is seldom violated in this section.

Game is more plentiful, I think, than it was fifteen years ago. Fish are not as plenty in this vicinity. There is no pond nearer than Middleborough that is stocked. With our five beautiful lakes within five miles of my house, not one is closed, but are fished day and night.*

Respectfully,

HENRY S. WILBUR,
Deputy.

NEEDHAM, NOV. 14, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— There has been a decided improvement in the observance of the fish and game laws during the past year. Partridge are getting very scarce in this section, while quail are on the increase, there being more here this year than for several years past. . . . I have warned two different parties, but have not had occasion to make any arrests.

Respectfully,

GEORGE H. HASSAM,
Deputy.

* The presumption is that Mr. Wilbur alludes to the ponds in Lakeville. If so, four of the largest have been closed to winter fishing, after having been stocked.

NEEDHAM, NOV. 21, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . There has been no Sunday hunting here. Quail are quite plenty. Partridge are very scarce. I have made no arrests.

Respectfully,

W. H. COOK,
Deputy.

NEEDHAM, NOV. 21, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have made no arrests, and know of no one who has been violating the law. Quail are plentiful in this section. Partridges and rabbits are fairly plentiful. . . .

Respectfully,

AUGUSTUS CROWELL,
Deputy.

FRANKLIN, NOV. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I had some talk with the farmers the other Sunday, and they said that it was never so still before as it had been this fall from Sunday shooting, and asked me what made it. I found one man fishing out in a boat. I got another boat and went after him, took him ashore and sent him home, and have seen no Sunday fishing since.

I have posted the game laws sent me in different places around in the woods where they would be seen. . . .

Partridges, quail and woodcock are very plenty in this section this year, and that is the reason that the Rhode Island hunters like to come over here to hunt, as they can sell them when they get home. I think we should have a law so that a deputy could search a person. The way the law is now, a man can go into Rhode Island with his hunting coat full of game, and I have no right to stop him and search his coat. The hunters in Franklin respect the law this year better than I ever knew them to before. . . .

Respectfully,

H. A. BENT,
Deputy.

BOSTON, NOV. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . My duties are confined mainly to keeping a strict watch over the dealers in our markets, and to the direction of the work done by two officers who are employed and paid by the Rod

and Gun Club of Boston, of which I have the honor to be president. In my work around the markets I am constantly being consulted as to changes in fish and game laws, and also as to the correct interpretation of them. I also distribute many copies of said laws each year. Personally, I have had no occasion to make any prosecutions during the past year. Our deputies make their own reports to the Board. During the past thirty-five years I have taken an active part in formulating and helping to enforce our fish and game laws. I believe that our fish and game dealers as a whole are most strictly living up to the requirements of said laws.

Concerning the need of certain changes in the laws, by which the sale of woodcock and ruffed grouse was forbidden, I can say that this measure was adopted none too soon. Those birds are exceedingly scarce throughout New England, particularly the grouse. In my work I have corresponded with sportsmen in various sections, and have personally investigated in others; and the result is invariably the same in all directions, — very few grouse to be found.

Respectfully,

JOHN FOTTLER, Jr.,

Deputy.

BOSTON, Dec. 9, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . During the past season we have visited all parts of the State. Last spring the brooks were very high, and in April very little trout fishing was done, and nothing illegal was noticed by us worth reporting. We have found very few cases of snaring of partridges this season. In fact, the old snarers who used formerly to make a business of it every fall have practically done nothing. . . . We have devoted considerable time to investigating complaints of gangs of Italians who have been shooting all kind of song birds in the vicinity of Boston. We have sent home a good many who claimed not to know the laws. . . .

Quail and ruffed grouse bred well this year, and have increased in numbers in most parts of the State.

Respectfully,

W. E. QUIGGLE,

PAUL DILLINGHAM,

Deputies.

WAKEFIELD, Nov. 11, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . Game conditions around Wakefield are favorable this fall. Being so near Boston, the covers here are shot over a great deal; but partridges are at least holding their own, and quail

are on the increase. The good effect of the prohibition of the sale of partridges cannot be stated too strongly. . . . The protective laws are well observed in this vicinity, and there is almost no Sunday shooting. I have spent all the time that I could spare in the woods, while Mr. Samuel Parker, the other deputy here, has taken good care of our lakes and streams, and neither of us has found a case of law breaking that warranted a prosecution. . . .

I respectfully submit, however, that there is need of a law to give the commission the power to close ponds to ice fishing. The only closing that can be had now is for a single period of three years; and while the acceptance by a town of chapter 331, Acts of 1888, restricting the taking of pickerel to one hand line, is partially effective to regulate ice fishing, still, the act is easily evaded, and conviction under it would be difficult. The laws of New Hampshire allow the commission to close ponds on petition of a certain number of inhabitants of the town in which the pond is located; and it seems that the Legislature ought to give our commission a like power here, for the results of winter fishing are more harmful in this State than in New Hampshire, on account of the larger number that fish here, and of the greater accessibility of our ponds.

The value of the deputy system has been shown very clearly this summer in the matter of Sunday fishing. As long as it was thought that the deputies would enforce the law against Sunday fishing, there was absolutely no fishing in the lakes here on that day; but as soon as it became known that the deputies would not enforce that law, people began to fish on Sunday. The amount of fishing was not large, it is true, but the incident showed conclusively the usefulness of the deputy system in preventing law breaking. . . .

Respectfully,

GEORGE M. POLAND,

Deputy.

WAKEFIELD, Nov. 1, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have made no arrests this year, and have received no complaints. The lakes in Wakefield have been carefully watched. Fishing has greatly improved in these lakes during the current year, and there have been more black bass ranging in size from one to five pounds than for a number of years past. Perch are large and more plentiful; only a few white perch were caught. A great many pickerel have been caught, but they run small. Many large ones were caught last winter, ranging from one to five pounds, and this hurt the summer fishing. . . . A number of German carp weighing from ten to twenty pounds were caught in May. . . .

There has been a great increase of game the last year, and there

are more partridges, quail, gray squirrels and rabbits than for a number of years past, and also more robins than last year. I think the laws have been respected, as a rule. . . .

Respectfully,

SAMUEL PARKER,
Deputy.

READING, NOV. 11, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Snaring of ruffed grouse in this section is practically at an end. We have patrolled this section from end to end without finding any snares. One case has been reported which we shall investigate. The men in this section who used to shoot and snare for market are doing practically nothing in this line. . . .

Game is more plentiful this year than for several years. We have seen two pheasants, and others have been reported as having been seen in our town. Quail are very plentiful, and if we have a mild winter we may look for good quail shooting next year. Ruffed grouse are fairly plentiful, also rabbit and gray squirrel. Two deer have been seen in this section the first of this summer, one in Reading and one in North Reading. . . .

Respectfully,

CHESTER B. PRATT,
MELVIN H. LOWD,
Deputies.

WOBURN, NOV. 7, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Since the closing of Horn Pond, except on stated days, no one has overstepped the regulations, to my knowledge. The people of Woburn seem to appreciate your efforts in this regard, and those interested are fully aware of the great drain which has taken place for many years. . . . As no one to my knowledge has transgressed the law, no arrests have been necessary. . . .

Respectfully,

FRED. J. BROWN,
Deputy.

BURLINGTON, NOV. 16, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have made no arrests, and have had little trouble to keep the laws enforced. Gunners have been scarce this season, and those who do go are strangers. The local residents appear to respect the laws.

There are some partridge and quail, and a number of gray squirrels. Rabbits do not appear to be very plenty. I have been out since the snow, and failed to track any. I have a flock of quail near

my house, and drove so close to them to-day that I stopped the horse in the road, and could have touched them with my whip. When I stopped, they flew, as I expected.

I liberated fifteen Belgian hares about the middle of July, and have found all but three dead. All that I found had a large worm under the skin which seemed to eat the flesh. . . . I have two in the woods that stay in a lot of scrub oaks, and appear to do well. There is a common rabbit, or cotton-tail, that stays with them, and I hope it may cross with them by spring. I have ten more in yards outdoors, and they are all healthy, but too small to let out until spring. From my experience, it will be some time before they become plentiful. If I knew the cause of this worm, I would try to remedy it. Some tell me it is high feeding, but it cannot be that, for I did not feed them, while those penned up that I did feed had no worms. A friend of mine thought it was a bot, or something like it, caused by a sting from some fly. I have seen this same worm in wild rabbits fifteen years ago on Cape Cod. They are about an inch long and half an inch through, brown in color, and have what appears to be an eye; almost looks like an extra eye when seen on a rabbit.*

Respectfully,

HARRY L. HASKELL,

Deputy.

NORTHBOROUGH, Nov. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have put in much time to suppress illegal fishing and hunting. I have found no one hunting Sundays, and have made no arrests. . . .

Partridge were quite plentiful the first part of the season. At the present time it is almost impossible to start one.†

There never has been as many quail as at the present time.

Respectfully,

ETHAN BOTHWELL,

Deputy.

HUDSON, Nov. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have made no arrests. . . . I have heard some complaint from honest sportsmen of certain hunters using fer-

* The "worm" mentioned by Deputy Haskell is probably the larval form of a fly (*Cuterebra*), which is found in several species of wild rabbits, if not in all. Rabbits are also frequently troubled with the larval form of a tape worm (*Tenia*), but neither of these appear to be detrimental to these animals for food purposes at those seasons — the colder portions of the year — when rabbits are supposed to be best for the table.

† The apparent scarcity of partridge in early November was probably due to foliage on the trees. In several sections of the State, where it was thought birds were rather scarce than otherwise, many were observed after defoliation of the trees, caused by heavy frosts and winds.

rets, but have never been able to prove such complaints. I found one man in the woods one Sunday with his dog, but he had no game or ferret. . . .

Respectfully,

DANIEL D. ROSE,
Deputy.

SOUTH ACTON, NOV. 16, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have made no arrests, but have written three letters to parties said to have been violating the fish and game laws. . . . I have caused a notice to be inserted in the local paper, which I feel satisfied has greatly reduced the violations of these laws in this section. . . .

Respectfully,

L. E. REED,
Deputy.

LANCASTER, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . No report of violation of the fish and game laws has been made to me this year. Game is as plenty as usual. Rabbits, woodcock, quail and gray squirrels are plenty, with not a few deer. . . .

Respectfully,

ANDREW J. KENNEDY,
Deputy.

LOWELL, NOV. 16, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have visited a number of ponds in this section the past summer, and found the fishing good. Nagog Lake, in particular, in North Acton, twelve miles from Lowell, is well stocked with big-mouth bass; pickerel and yellow perch are also plentiful. I also visited Long-Sought-for Pond, at Westford, where I found good fishing, especially for yellow perch, some of which weigh two pounds each. Fishing has been good all summer at Great Pond, in Andover. Parties have gone there from Lowell this summer and got some very nice catches of bass and white perch. The bass taken there are the small-mouth species. . . . Fishing at Great Pond is better, I suppose, because of the restrictions. . . . I can truly say that the fish are increasing in the ponds in this vicinity. . . .

Game is very plentiful this year in this locality. There are lots of hares, partridge, gray squirrels and quail. A while ago people this way were afraid the game had all or nearly all left this part of the country, but I am happy to say such is not the fact. . . . Last

Tuesday one man went to Carlisle and brought back six nice gray squirrels, four quail and one woodcock. . . .

A deer was found dead at Middlesex; he was killed by a fall. He was found by a Mr. McDonald at the foot of a high embankment, with no bullet wounds. . . .

Respectfully,

CHARLES W. SWAN,
Deputy.

LOWELL, NOV. 19, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . A new fishway is badly needed here. . . . During the month of May there were a great many eels here at the fishway, but not as many as last year. A large number of chub, suckers, yellow perch and hornpouts have also been seen around the fishway. I likewise saw a lot of small-mouth and large-mouth black bass, and have seen eight salmon in the pools near the fishway. The fishing in the vicinity of Lowell has been good this year; some splendid strings of pickerel and large-mouth bass have been taken from Great Pond, North Andover, Concord River, and Lake Nagog, in North Acton. The white perch that were put in Leach's Pond three years ago, I think, are doing well; schools of them have been seen near the surface after sundown on several occasions. Nabnasset Pond and also Long Pond, which were stocked in 1897, are now open to ice fishing, after having been closed during the last three years, and the fishermen expect some good fishing in them. . . . I have made no arrests.

Partridge and woodcock are rather scarce. Quite a number of quail have been seen, but mostly young birds. Gray squirrels and rabbits are more abundant than last year. A number of deer have been seen in the vicinity of Lowell. I know where there are five within six miles from here. I investigated the killing of a deer on November 13, and was very glad to find that the animal was not shot, but was killed by jumping from a high crossing near Middlesex village.

Respectfully,

GEORGE T. SPENCE,
Deputy.

DRACUT, NOV. 25, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . Partridge are on the increase. By careful observation I am satisfied that the new law and shortening of the season are doing a lot of good. . . . Quail are more plentiful than I have seen them for years, but small, — hardly larger than robins.

There seems to be a second brood of birds in the fields. Quail also show the good the law against market shooting has done. Woodcock I can say but little about, for I have been able to raise only two birds all the fall. There are a few deer, and they are slowly increasing. I have seen two does with fawns this fall. . . . One four-year-old buck came to the city two weeks ago, and while crossing a bridge over a railroad was frightened, and jumped over the side to the railroad below and was killed.

White perch in Long Pond are beginning to show up, also black bass now and again. . . . Rabbits are plenty this year, and game wardens have had their hands full watching men with ferrets, who have given them lots of bother, but have been very successful in keeping them where they belong. I think a person caught in the act of using a ferret, in addition to the regular fine, should forfeit dog, ferret, and everything used for getting the rabbit.

Respectfully,

C. FRANK SCOTT,
Deputy.

DUNSTABLE, NOV. 28, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I have visited Massapoag Pond seventy-three times during the season; have made no arrests. A cold, backward spring prevented much fishing and camping out which has been practised in former years. . . .

Squirrels, partridges and rabbits are quite plentiful. One hunter caught an old-fashioned white rabbit, the first I have seen for more than thirty-five years. Deer are quite numerous in the spring and summer months; in fact, two or three of them frequented my mowing fields day and night for the last two years, and made quite a path through my corn fields. Three, four and five have been seen in the highways at one time by several persons. My father has lived in this section for eighty-one years, and never saw anything like it before.

Respectfully,

GEORGE W. CHANEY,
Deputy.

LYNNFIELD, NOV. 10, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . Partridges are about as plenty as last year; quail and woodcock are very scarce. I do not have much trouble with Sunday gunners. The pike perch have not been seen this year.

Respectfully,

GEORGE WILLIAMS,
Deputy

PEABODY, Dec. 7, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have heard of some shooting on the Sabbath, suspicions of parties violating the lobster law, and also parties taking smelts illegally by net; but I have been unable to locate them, as they destroyed their net after hearing that I was making investigation. I understood they were selling from twenty to thirty pounds per day, but I was unable to purchase any myself or get any one to purchase some for me. There has been very little Sunday shooting, and what there was, was in the vicinity of Cape Ann. . . .

I have seen quite a number of pheasants in the vicinity of Ipswich, Wenham and Hamilton. . . .

Respectfully,

A. B. CLARK,
Deputy.

BEVERLY, Nov. 26, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . The quail have been more plentiful in this section of the State during the last summer and fall than they have been at any time in my remembrance. . . . Pheasants have done well, and are rapidly increasing. I have seen and heard of numerous birds in the last six months. The partridges are fairly plentiful.

I have put in much time Sundays and other days when I could spare the time from my work. I have not made any arrests, but have sent several boys home who had started out to shoot on Sunday. . . .

Respectfully,

EZRA S. PIERCE,
Deputy.

BEVERLY, Nov. 21, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Quail were never more plentiful. . . . Partridge are more numerous than last year, but not many woodcock have been bagged. Pheasants are doing fine, and on my travels I have seen many. I have received a few complaints of Sunday shooting, but have myself come across no one violating the law, and have been in the woods almost every Sunday.

The varieties of fish caught in our lakes and streams give the boys lots of sport, and are not decreasing.

Respectfully,

F. G. LEFAVOUR,
Deputy.

BEVERLY, Nov. 18, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . Last spring I liberated five dozen quail, . . . and up to the first of October I do not think one had been killed. I also watched the brooks in the spring, and saw no violation of the law in regard to catching smelts. Quail have increased in the last two years, but partridge and woodcock are scarce. Black ducks are very abundant this year. The sportsmen have respected the Sunday law in every detail, therefore I have been unable to make any arrests.

Respectfully,

GEORGE W. GOLDSMITH,

Deputy.

WENHAM, Nov. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — The year has been a very successful one, from the fact that we have been bothered little by law breakers. . . . Game is very plentiful. Partridge and quail seem to be on the increase, while woodcock are seldom seen. Pheasants seem to be on the increase, in some sections being so plenty as to bother sportsmen who are out after quail. . . .

Respectfully,

FRED S. KNOWLTON,

Deputy.

MANCHESTER, Nov. 18, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — This was a good season for pheasants; they have increased to large numbers, and we can see young flocks everywhere. They are a delight to the people in our vicinity. Quail cannot be found, except those we have liberated. Partridge and woodcock are not often seen and other game is scarce here. There has been no Sunday gunning or other violation of the law, so far as I know.

Respectfully,

HERMAN THIEMANN,

Deputy.

NORTH ANDOVER, Nov. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . As regards the public complying with the laws, I must say that they have fulfilled all the requirements. . . . Partridge, quail, squirrels of all kinds, and rabbits are flourishing.

Respectfully,

WILLIAM J. TOOHEY,

Deputy.

IPSWICH, Nov. 18, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have not arrested any one this year. . . . Quail and partridge I know are plenty this fall. I have seen more pheasants this year than any time, . . . and I think they are increasing in Ipswich. . . .

Respectfully,

JAMES A. LORD,

Deputy.

GEORGETOWN, Nov. 18, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I was appointed the present year, and have had only a short time in service. . . . I have spent considerable time in the woods about here, but have seen no violations of the laws, nor have I heard of any. . . . Game, especially partridges, is more plentiful than it has been for some years, and now and then a pheasant is seen in the fields between Georgetown and Groveland.

Respectfully,

ELWOOD T. WILDES,

Deputy.

GROVELAND, Nov. 17, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:—I have made no arrests this year. I have used all of my spare time in looking after the fish and game in the town of Groveland. The trout that were placed in Argelia, or Brown's Brook, last spring, are growing very fast; from fifteen to thirty nice trout can be seen in places. Mr. Gardner Wood and myself and other members of the Groveland Fish and Game Protective Association have fed worms and bugs to the fish as often as possible all summer. There has been no fishing in the brook since June 5 of this year. We expect people will try to fish next spring.

Most of our people are in favor of having very strict laws to protect the fish and game. Chapter 379, Acts of 1900, has been a great help in preserving game. I think the sale of quail should also be prevented. The pheasants are all alive. We leave wheat and cracked corn where they can find it. The association has obtained permission from the owners of about seven hundred acres of land to post it, and prevent gunning and trapping thereon. Quail, partridge and rabbits are plentiful. Gray squirrels and woodcock are scarce. Sunday gunning has been stopped.

Respectfully,

LOUIS C. GORDON,

Deputy.

AMESBURY, Nov. 25, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I have made no arrests, and, as far as I know, no one has broken the fish and game laws. Partridge and quail are increasing and the pot hunters are decreasing.

Respectfully,

LAWRENCE FREEMAN,

Deputy.(2) *Central Section of the State.*

MILFORD, Nov. 6, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Quail were very plenty at the opening of the shooting season, but the hunters have been after them early and late. It seems to me to be inconsistent to allow the sale of the very birds which the sportsmen have been planting all over the State. . . . As for partridge, I have seen quite a number, but hunters say they are scarce, and I hear of but few woodcock being shot. Pheasants are seen occasionally, and there are more about here than are seen, as they are very shy. Several deer have been seen during the spring and summer.

There have been two cases of Sunday shooting before the courts here, brought by a local officer. . . . You can form some idea of the amount of shooting done in this vicinity from the fact that one dealer in ammunition has sold over eight thousand shells, and three other dealers not heard from.

Respectfully,

W. N. PRENTISS,

Deputy.

WESTBOROUGH, Dec. 1, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have made no arrests. . . . There have been a great many more quail this year than there has been before for a number of years. . . .

Respectfully,

A. H. SANDRA,

Deputy.

MILLBURY, Oct. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have enforced the close season on Dority Pond, and have completely stopped the practice of taking small bass. I have investigated many complaints, and have stopped further violations. I have not made any arrests. . . . Trout were more

plentiful this year than last. They should be still more abundant next year. . . .

Deer are frequently seen, and are evidently on the increase. There are more partridge and quail than I have known for many years. The laws have been well observed. I only know of one sale of partridges, but was unable to get evidence to convict, as both parties announced their intention of swearing the birds were a gift. The buyer is a man who was prominent in having the anti-sale law passed. I do not think there has been a snare set in this vicinity this year. . . .

Respectfully,

GEORGE E. WHITEHEAD,
Deputy.

LEICESTER, NOV. 10, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have spent most of my spare time in the protection of game and fish. . . . There is very little illegal work done in this town. There has been some fishing in Henshaw Pond on days that they should not fish, but I have not been able to catch them as yet. Game seems plentiful, and some good bags have been brought in. . . . I have not had to make an arrest this year. . . .

Respectfully,

TIMOTHY MCCARTHY,
Deputy.

WEST UPTON, NOV. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — I am glad to say there has been a decided improvement in the observance of Sunday hunting and fishing the past year here. I have been able to learn of but two instances where guns were heard on Sunday.

I was disappointed to find so few partridges, for there was a good number left over last year. I believe the wet weather in May had something to do with it. This bird needs all the protection it possibly can get. . . . The woodcock have been rather scarce, but quail were very plentiful; I never saw so many here before. Rabbits and squirrels are very numerous. A number of deer have been seen in this locality this year. . . .

I have made no arrests, as the sportsmen have lived up to the laws very well. I distributed the abstracts of the fish and game laws you sent me among interested parties.

Respectfully,

DANIEL A. WARREN,
Deputy.

OXFORD, Nov. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — Since receiving our appointments we have kept diligent watch of all hunters in this town, part of Charlton, Sutton and Auburn, and have seen nothing out of the way. We have spent every Saturday night, and all of each Sunday, looking after ferret hunters and snares, but have not found a single one so far, — something unusual for this section. The law prohibiting the sale of game birds has put an end to pot hunting. Partridges are plentiful this year, and quail are also, but very wild. Woodcock are never extra plentiful in this section. Hares are also quite numerous. Sunday gunning has gone out of fashion hereabouts. . . .

Respectfully,

ARCHIBALD CAMPBELL,

JAMES H. CARLING,

Deputies.

WORCESTER, Nov. 21, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — . . . From May until November I was confined, so it was impossible for me to make any arrests. I have been in the woods some, and I think the shortening of the open season is a step in the right direction, only carry it farther, and make it a crime to have a dog or gun in the woods or brush either Sunday or during the close season.

Respectfully,

HENRY A. MOWER,

Deputy.

FISKDALE, Nov. 9, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — . . . No large trout or bass were taken this season. Partridges and quail were plenty, but woodcock were scarce. Deer have been seen quite often by farmers, and I have failed to hear of any one hunting or chasing them. I think the game laws have been observed better this year than last. Prohibiting the sale of birds has made them more plentiful, and I hope it will remain so for a number of years.

Respectfully,

J. W. ROBINSON,

Deputy.

CHARLTON, Nov. 10, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — Game is about the same as last season, so far as quail and partridge are concerned. I have put in quite a lot of time

looking after Sunday shooting, but have not heard a gun on Sunday this season, and so there have been no arrests.

Respectfully,

CHARLES H. BALDWIN,
Deputy.

WEBSTER, Nov. 21, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I have made no arrests for violation of fish and game laws. I am satisfied there are few violations. . . .

Game birds are about as usual, except quail, which are more plentiful. The song and insect eating birds are numerous. If we could dispense with cats and English sparrows, I think we could have a little paradise of song birds in our villages. The cats stand ready to catch every young robin that leaves its nest. . . .

Respectfully,

RUFUS C. HALL,
Deputy.

WEBSTER, Nov. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— I have made no arrests, having known of no occasion for so doing. I have taken a large . . . gill net that I found in the woods near a pond in the town of Dudley. . . .

Hunters have seen two Mongolian pheasants that were released by your agent in this locality. Partridge are very scarce and quail are plentiful.

Respectfully,

CHARLES B. ADAMS.
Deputy.

FITCHBURG, Nov. 26, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I took the oath of office Oct. 12, 1901. October 20 [Sunday] I went out, but found no hunters. The 27th I found six, and gave them a chance to go home, on condition they would do no more Sunday hunting. November 3 I found five hunters, and gave them the same chance; I told them if I caught them again I should certainly arrest them. November 10 I found four, and sent them home; November 17 I found six, and sent them home; November 24 I did not find any. I have given all my time for the last six Sundays, . . . and am sure I have stopped seven-tenths of the Sunday hunting here. . . .

Deer are getting quite plenty here; they are seen often. . . .

Respectfully,

C. O. GIBSON,
Deputy.

FITCHBURG, NOV. 19, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . No arrests have been made. I have warned quite a number, but in no case have had occasion to give a second warning.

Quail liberated here by the Fitchburg Rifle and Gun Club have produced broods of from twelve to fifteen. Pheasants were more numerous last spring, and I have seen two broods in August. The game laws have been very well respected in this section.

Respectfully,

FRED J. PROCTOR,
Deputy.

SPENCER, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Partridges and quail are increasing, and are more plentiful in this vicinity than they have been for a number of years.

Respectfully,

JAMES A. SPENCER,
Deputy.

ATHOL CENTRE, NOV. 20, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . Trout fishing has been very fair; some good catches have been made on the stocked brook. We are in hopes to see better results next year, as the brooks have not dried up this summer. . . .

Grouse are not very plenty. Gray squirrels are numerous. The white rabbit is nearly gone, and hunting the little gray is about all the sport the boys have. Deer are seen often; one man reports seeing four as he came to town to-day. . . . I have no violations of fish and game laws to report.

Respectfully,

W. H. FROST,
Deputy.

PETERSHAM, NOV. 23, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN:— . . . I have caused no arrests to be made. . . . But very little Sunday hunting has been done, and if our fish and game laws have been violated, I do not think it has been done by any of my townspeople. . . .

Respectfully,

J. H. GAFNEY,
Deputy.

WEST GARDNER, NOV. 11, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have made it a rule to inform the public relative to the fish and game laws, and had the laws printed in the local newspaper. I personally notified persons who I thought were breaking the game laws, and assured them if they continued they would not be spared. . . .

Trout have been more than ordinarily plentiful in this vicinity during the present year, and the brooks are well stocked with small ones. A party that was out fishing May 17 found a gill net in Perley Brook; they took the net out of the brook and brought it to me. . . . On June 29 I was notified that one of the trout brooks in the north part of the town, called the Eaton Brook, had run dry, and several thousands of the State trout would die if they were not taken out. I drove to the brook at once, and found the trout in a little pool of muddy water. I took the trout out . . . and put them in Perley Brook in a place that never runs dry, and thus saved two pails full of young trout from one to six inches long that would have died in a short time.

Partridge, quail, woodcock, ducks and squirrels have been fairly plentiful in this vicinity. . . . Hares and rabbits are very scarce here. . . . Deer have been seen in a few places, accompanied by their young. Farmers report seeing them grazing with stock in the pasture. No attempt has been made to harm them in any way. . . .

Respectfully,

FRED S. CASAVANT,

Deputy.

GREENWICH, NOV. 22, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have not spent as much time as a deputy commissioner as I would like, but my business has been such I could not give more time. Game birds are quite plentiful. . . .

Respectfully,

W. S. WARD,

Deputy.(3) *Western Section of the State.*

SPRINGFIELD, NOV. 25, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . In previous years I have had many complaints in regard to Italians shooting song birds, but this year I have not received any. I have kept close watch of them all through the

summer, and, as near as I can find out, there has been very little if any of it done.

Respectfully,

W. S. WHEELER,

Deputy.

WARE, Nov. 19, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — . . . I have warned a number of people, who have made a practice of Sunday hunting, to desist, and am glad to report that in all cases they have complied with the request. The same may be said of those I have warned not to set snares or hunt with ferrets.

Game is quite plentiful, but the present laws do not protect, to any great extent, partridge, quail or woodcock, as a good shot can get from ten to thirty in a day. A law should be passed prohibiting the taking of more than five birds in any one day by any one person, and a fine should be the penalty for violations of that law ; and the possession of more than that number by any person in the vicinity where partridge, quail or woodcock abound should constitute evidence to convict. With this and certain other additions, the present fish and game laws would be satisfactory.

The practice of hunting with ferrets is carried on to some extent in the smaller towns. . . . I have found an unusual number of "dead falls" or "figure four," but, as nearly all were baited with meat, it is probable they were set for skunks, foxes or other animals not protected.

I have found the public generally in favor of the fish and game laws, and the only complaint is that the deputies do not have sufficient authority to successfully enforce the laws.

Respectfully,

A. H. ELDREDGE,

Deputy.

COLRAIN, Nov. 25, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN : — . . . Since I have been deputy I have stopped Sunday hunting, also most of the Sunday fishing. . . . I have made no arrests. . . .

I have looked at several stocked brooks and find the trout are doing well. If the fishermen will let them alone, it will be but a few years before there will be plenty of trout.

Woodcock seem to be quite numerous, while partridge are not as plentiful as usual, and think it is owing to the wet spring.

Respectfully,

C. N. CARPENTER,

Deputy.

BUCKLAND, Nov. 27, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . Game has been fairly plentiful this season, with the exception of ruffed grouse, which are scarce, though more abundant than last year. I have not killed one for three seasons. I do not think any game has been sold or illegally killed in this section during the past year.

Respectfully,

E. C. HALL,
Deputy.

BUCKLAND, Nov. 24, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . There are not many fish found in these streams, and but few six-inch trout. If this six-inch law is enforced for a few years, I think the trout will be more abundant. . . .

Gray squirrels are very abundant this fall, but there are not many partridges. A young deer came to one of our neighbors last May, and has stayed around his farm all summer, and is just as tame as his dog. He goes around the house and barn when he wants to, but he has never been confined. . . .

Respectfully,

MILFORD J. CRANSON,
Deputy.

PLAINFIELD, Oct. 17, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have not arrested any one. I have not found any one with small trout except boys, and I thought it would serve our purpose better to give them notice that if they were caught again I should take them. . . . Every one heeded the warning. I found a Mr. Neigh who had a small ice pond, and his boys were putting small trout into it. . . . They thought they had a right to catch them and put them in the pond. They had about one hundred and fifty trout in the pond, but he said he would put them back into the brook, and he did while I was there. There has not been over half the fishing this year that there was last. . . .

Respectfully,

SHEPARD M. DYER,
Deputy.

BECKET, Nov. 19, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have had complaint made to me in two cases of owners of sawmills running sawdust into trout streams. I

notified them that I should report to the commissioners if it was not stopped, and they have disposed of it otherwise since.

I have had complaint made to me of two or three cases of shooting before the law was off, but on looking the matter up, found there was no evidence to warrant an arrest. I think there has been no snaring done in this vicinity this season, and not the usual amount of shooting.

There are apparently more birds this season than common. . . . I had a report to-day of four deer located about two miles from the village, and they seem to be quite plenty. The trout season was not as good as last year; not so many caught, but larger. . . .

There is some Sunday fox hunting about here, but I have taken no steps to stop it, as every fox killed is in the interest of game protection.

Respectfully,

W. J. Cross,
Deputy.

CUMMINGTON, NOV. 18, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have made no arrests. There were two or three instances where I could have made arrests, but I think good results were obtained without going to court. I will cite two cases. I was informed that a man in Plainfield was catching trout from a stream which had been stocked yearly from the State hatchery, and was open to the public. Report said he was catching trout under size from this stream, and stocking a private pond on his own land. I saw the man and talked with him. As soon as he found out what was wanted, and heard he was breaking the law, he very readily agreed to stop, and also to destroy the fish pond and restore trout under size to the stream, all of which I saw done. There was also a complaint made to me that some boys in town were killing song birds. On investigation, I found it was true. I interviewed the boys, and explained the law in regard to the protection of song birds. They then promised to respect the law in the future, and I am very sure they did.

I have not seen any one in this vicinity with under-sized trout in their possession. There was less trout fishing here this year than usual. The streams were well stocked with trout about four and one-half to five and one-half inches long. We have several fine natural trout brooks here, which it will pay to keep stocked. We can see good results from planting fry in the past.

Game was scarce here this fall. Pheasants are seen occasionally; they have been sent here by the State the past two years. There is

excellent cover about here for game birds. Deer are seen in this vicinity quite often.

Respectfully,

GEORGE W. HOLT,
Deputy.

ADAMS, Nov. 12, 1901. .

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have made no arrests. Partridge are very plentiful this year. I have not seen as many for several years. Rabbits are scarce, as there has been a great deal of ferreting done through this section. . . . Deer are becoming very plentiful.

Trout are scarce, and are becoming more so every year. The streams are well stocked with small ones, but they do not get a chance to grow. Berkshire County should have a six-inch law, the same as other counties. . . .

I have seen one pheasant, — a male bird. . . . There are a great many foxes, and some of the sportsmen think the State should put a bounty on them, as they destroy a great many partridge and rabbits.

Respectfully,

FRANK E. O'NEILL,
Deputy.

HOOSAC TUNNEL, Nov. 24, 1901.

To the Commissioners on Inland Fisheries and Game.

GENTLEMEN: — . . . I have made no arrests. . . . Trout are plenty, and the brooks were well stocked when the season closed this fall. Birds and other game are quite numerous, with an apparent increase in the number of white rabbits.

Deer are seen frequently, and, if the dogs would leave them alone, would increase rapidly. I found a yearling buck which had, I think, died from natural causes, as it was not torn by dogs, and did not show that it had been shot. . . .

Respectfully,

LYMAN E. RUBERG,
Deputy.

[H.]

REPORT UPON CONVICTIONS, FINES, ETC., FOR VIOLATIONS OF FISH AND GAME LAWS.

STATE v.—	TOWN OR CITY.	Offence.	Court Decision.	Fine.
Alfred A. Doerfler, .	Tisbury, .	Killing pheasant, .	Convicted, .	\$20 00
Reuben B. Hardy, .	Falmouth, .	Illegal fishing, .	Convicted, .	5 00
William Crosby, .	Cotuit, .	Short lobsters, .	Convicted, .	5 00
Frank Bassett, .	Barnstable, .	Unmarked lobster car, .	Convicted, .	10 00
Lewis B. Rogers, .	Chatham, .	Sunday hunting, .	Convicted, .	5 00
George Priaulx, .	South Dartmouth, .	Illegal fishing, .	Convicted, .	50 00
Arthur H. Norris, .	Fairhaven, .	Illegal fishing, .	Convicted, .	10 00
Foster G. Sherman,*	Fall River, .	Short lobsters, .	Convicted, .	—
William Muirhead, .	Hanson, .	Sunday hunting, .	Convicted, .	20 00
Henry E. Phillips, .	Marshfield, .	Short lobsters, .	Convicted, .	59 00
Alfred J. Clements, .	North Attleborough, .	Killing deer, .	Discharged, .	—
Thornton H. Adams, .	North Attleborough, .	Killing deer, .	Discharged, .	—
Mathew Hiney, .	North Attleborough, .	Killing deer, .	Discharged, .	—
Lewellyn E. Mowry, .	Providence, R. I., .	Sunday hunting, .	Convicted, .	5 00
Carl E. Wilson, .	East Providence, R. I., .	Taking game out of State, .	Discharged, .	—
Fricker Minigasta, .	Woonsocket, R. I., .	Sunday hunting, .	Convicted, .	4 00
Antonia Boulier, .	Woonsocket, R. I., .	Sunday hunting, .	Convicted, .	4 00
Benjamin F. Monroe, .	Rehoboth, .	Sunday hunting, .	Convicted, .	5 00
William C. Hay, .	South Bellingham, .	Sunday hunting, .	Convicted, .	5 00
Joseph Galligan, .	Canton, .	Sunday hunting, .	Discharged, .	—
John Sandstrom, .	Itull, .	Short lobsters, .	Convicted, .	10 00
Joseph Crodor, .	Hull, .	Short lobsters, .	Convicted, .	50 00
George Hammond, .	Hull, .	Sunday hunting, .	Convicted, .	5 00
Austin Crocker, .	Nantasket, .	Sunday hunting, .	Convicted, .	5 00
Henry W. Phillips, .	Weymouth, .	Illegal fishing, .	Convicted, .	50 00

Walter Phillips, . . .	Weymouth, . . .	Illegal fishing, . . .	Convicted, . . .	50 00
William Lobest, . . .	Weymouth, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Wm. Ammoschiverty, . . .	Weymouth, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Joseph Matera, . . .	Weymouth, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Edward Anderson, . . .	Weymouth, . . .	Egg-bearing and short lobsters, . . .	Convicted, . . .	15 00
Antonio S. Veader, . . .	Weymouth, . . .	Mutilated lobsters, . . .	Convicted, . . .	10 00
Nathaniel W. Bates, . . .	Weymouth, . . .	Sunday hunting and killing game out of season, . . .	Convicted, . . .	60 00
Joseph Woodman, . . .	Braintree, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Eli Eddy, . . .	Braintree, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Tony Limona, . . .	Braintree, . . .	Shooting song birds, . . .	Convicted, . . .	10 00
Henry Hume, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Aleck Hume, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Charles Revcure, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Frank Howard, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Lars Wahl, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Fred Fogg, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	10 00
Harry Swain, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	10 00
Charles Waterhouse, . . .	Quincy, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Charles Peterson, . . .	Quincy, . . .	Short lobsters, . . .	Convicted, . . .	25 00
Charles P. Rolfc, . . .	Milton, . . .	Illegal fishing, . . .	Convicted, . . .	50 00
Timothy Sullivan, . . .	Milton, . . .	Illegal fishing, . . .	Convicted, . . .	10 00
Edward Conarty, . . .	— . . .	Interfering with a prisoner, . . .	Convicted, . . .	5 00
Francisco Brignoli, . . .	Boston, . . .	Short and egg-bearing lobsters, . . .	Convicted, . . .	40 00
Peter Sullivan,* . . .	Boston, . . .	Shooting tern, . . .	Convicted, . . .	—
Windson Drisco, . . .	Boston, . . .	Shooting tern, . . .	Convicted, . . .	10 00
Joseph Antonio, . . .	Boston, . . .	Shooting robins, . . .	Convicted, . . .	10 00
George L. Gordon, . . .	Watertown, . . .	Sunday hunting, . . .	Convicted, . . .	10 00
Walter E. Merryman, . . .	Beachmont, . . .	Short and mutilated lobsters, . . .	Convicted, . . .	275 00
James Carlucci, . . .	Lynn, . . .	Illegal hunting, . . .	Convicted, . . .	5 00
Frank Mossary, . . .	Lynn, . . .	Illegal hunting, . . .	Convicted, . . .	5 00
Peter Freeny, . . .	Lynn, . . .	Short lobsters, . . .	Convicted, . . .	10 00

* On file.

Report upon Convictions, Fines, etc., for Violations of Fish and Game Laws — Continued.

STATE v. —	TOWN OR CITY.	Offence.	Court Decision.	Fine.
Robert N. Bentley, . . .	Salem, . . .	Sunday fishing, . . .	Discharged, . . .	—
Walter I. Jones, . . .	Marblehead, . . .	Short and egg-bearing lobsters, . . .	Convicted, . . .	\$45 50
Melvin Cook, . . .	Gloucester, . . .	Shooting partridge out of season, . . .	Discharged, . . .	—
Howard Haskell, . . .	Gloucester, . . .	Illegal hunting, . . .	Convicted, . . .	20 00
Joseph F. Ainsworth, . . .	Amesbury, . . .	Illegal fishing, . . .	Convicted, . . .	*20 00
August Simon,† . . .	Lawrence, . . .	Fishing in closed pond, . . .	Convicted, . . .	—
Robert Bluemen,† . . .	Lawrence, . . .	Fishing in closed pond, . . .	Convicted, . . .	—
Gustave Shaffel, . . .	Lawrence, . . .	Fishing in closed pond, . . .	Convicted, . . .	10 00
August Bluemen, . . .	Lawrence, . . .	Fishing in closed pond, . . .	Convicted, . . .	10 00
Samuel F. Hildreth, . . .	Lowell, . . .	Ferretting, . . .	Convicted, . . .	20 00
John Matthews, . . .	Lowell, . . .	Illegal fishing, . . .	Convicted, . . .	10 00
John Noval, . . .	Lowell, . . .	Illegal fishing, . . .	Convicted, . . .	10 00
C. H. Ruskin, . . .	Milford, . . .	Sunday hunting, . . .	Convicted, . . .	10 00
J. H. Foster, . . .	Worcester, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
A. B. Burnell, . . .	Worcester, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
A. Girard, . . .	Worcester, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
James H. Fisher, . . .	Worcester, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
Fred Hulbert, . . .	Worcester, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
W. Herbert, . . .	Worcester, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
Fred Taylor, Jr.,‡ . . .	Worcester, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
John Brown, Jr.,‡ . . .	Worcester, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Axel W. Carlson, . . .	Worcester, . . .	Illegal fishing, . . .	Convicted, . . .	5 00
Winfred Doane, . . .	Brookfield, . . .	Illegal fishing, . . .	Convicted, . . .	10 00
T. J. Manly, . . .	North Brookfield, . . .	Sunday fishing, . . .	Discharged, . . .	—
E. Scudder, . . .	North Brookfield, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
Samuel Berard, . . .	Roachdale, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
Charles Berard, . . .	Roachdale, . . .	Sunday hunting, . . .	Convicted, . . .	15 00

L. Lupien,	Spencer,	Sunday hunting,	Convicted,	5 00
Eli Lupin,	Spencer,	Sunday fishing,	Convicted,	5 00
William M. Bourchard,	Southbridge,	Sunday hunting,	Discharged,	-
Adolph Lasanaugh,	Southbridge,	Illegal fishing,	Convicted,	7 50
Louis Pronlx,	Southbridge,	Illegal fishing,	Convicted,	7 50
Henry Cadieux,	Palmer,	Sunday fishing,	Convicted,	5 00
Walter LaDuke,	Palmer,	Ferretting,	Discharged,	-
Fred Bishop,	Palmer,	Ferretting,	Discharged,	-
George Smith,	Palmer,	Ferretting,	Discharged,	-
Harry Bond,	Palmer,	Ferretting,	Discharged,	-
Hilliard Smith,	Palmer,	Ferretting,	Discharged,	-
Eugene Saunders,	Oakham,	Sunday hunting,	Convicted,	5 00
Israel Harness,	West Brimfield,	Sunday hunting and fishing,	Convicted,	5 00
Louis Harness,	West Brimfield,	Sunday fishing,	Convicted,	5 00
John Harness,§	West Brimfield,	Sunday fishing,	Convicted,	-
A. Harness,§	West Brimfield,	Sunday fishing,	Convicted,	-
W. A. Ruddock,	Enfield,	Sunday fishing,	Convicted,	6 00
Charles W. Jones,	Enfield,	Sunday fishing,	Convicted,	6 00
Charles Gardner,	Enfield,	Sunday fishing,	Convicted,	6 00
George Ellis,	New Salem,	Illegal hunting,	Convicted,	10 00
A. W. Erickson,||	Gardner,	Sunday fishing,	Convicted,	3 66
David Goddard,	Rutland,	Sunday hunting,	Convicted,	20 00
David Taylor,	Rutland,	Sunday hunting,	Convicted,	10 00
John Alvey,	Ware,	Illegal hunting,	Discharged,	-
John Dalton,†	Monson,	Sunday fishing,	Convicted,	-
Henry Hall,¶	Monson,	Sunday fishing,	Convicted,	5 00
Homer Bradway,**	Monson,	Killing pheasant,	Convicted,	-

* Judge afterward remitted the fine.

† On file.

‡ It is believed these names were assumed.

§ On file. These were boys, and for this reason the court put their cases on file.

|| In this case only the cost of court was paid, and the case was filed.
¶ Appealed.

** A boy. Case filed, with full approval of commission.

Report upon Convictions, Fines, etc., for Violations of Fish and Game Laws—Concluded.

STATE v.—	TOWN OR CITY.	Offence.	Court Decision.	Fine.
Ernest Yotte, . . .	Ludlow, . . .	Sunday hunting, . . .	Discharged, . . .	—
Francis Brennan, . . .	North Hatfield, . . .	Sunday fishing, . . .	Convicted, . . .	\$5 00
Thomas Coffey, . . .	North Hatfield, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
C. S. Smith, . . .	Granby, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
H. L. Easton, . . .	Granby, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
Bilesino Antonio, . . .	Granby, . . .	Sunday hunting, . . .	Convicted, . . .	5 00
Fred W. Kempkis, . . .	Hadley, . . .	Illegal and Sunday hunting, . . .	Convicted, . . .	30 00
Alfred McDonald, . . .	Holyoke, . . .	Sunday hunting, . . .	Convicted, . . .	6 00
Joseph Deroches, . . .	Holyoke, . . .	Sunday hunting, . . .	Convicted, . . .	6 00
Peter Boufiglio, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	6 00
Joseph Parker, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	6 00
Frank St. Clair, . . .	Holyoke, . . .	Sunday fishing, . . .	Case withdrawn, . . .	—
John Tait, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
Thomas Diamond, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
Patriek Fitzgibbons, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	6 00
Edward Griffin, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	6 00
Robert Suyden, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	6 00
William Connors, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	6 00
Henry Davis, . . .	Holyoke, . . .	Sunday fishing, . . .	Convicted, . . .	6 00
Peter Viens, . . .	Chicopee Falls, . . .	Sunday hunting, . . .	Discharged, . . .	—
Stephen Duprey, . . .	Chicopee Falls, . . .	Sunday hunting, . . .	Discharged, . . .	—
Patriek Caven, . . .	Chicopee Falls, . . .	Sunday hunting, . . .	Discharged, . . .	6 00
Albert Curtis, . . .	Springfield, . . .	Sunday hunting, . . .	Convicted, . . .	6 00
Edward Franklin, . . .	Springfield, . . .	Sunday hunting, . . .	Convicted, . . .	6 00
A. P. Casey, . . .	Springfield, . . .	Killing game in close season, . . .	Discharged, . . .	—
Charles H. Stebbins, . . .	Springfield, . . .	Sunday fishing, . . .	Convicted, . . .	5 00
Fred Needham, . . .	Springfield, . . .	Sunday fishing, . . .	Convicted, . . .	5 00

George Harris,	.	Agawam,	.	Sunday hunting,	.	Convicted,	5 00
John Merry,	.	Agawam,	.	Sunday hunting,	.	Convicted,	5 00
Benjamin Babb,	.	Southwick,	.	Illegal fishing,	.	Convicted,	30 00
Charles Frisbee,	.	West Granville,	.	Illegal hunting,	.	Convicted,	10 00
Cassius C. Scranton,	.	New Marlborough,	.	Short bass,	.	Convicted,	2 00
John Burk,	.	Monterey,	.	Sunday hunting,	.	Convicted,	3 00
John Martin,	.	Monterey,	.	Sunday hunting,	.	Convicted,	3 00
William Martin,	.	Monterey,	.	Sunday hunting,	.	Convicted,	3 00
Fred Gorham,	.	Great Barrington,	.	Sunday hunting,	.	Convicted,	3 00
Fred Jones,	.	Pittsfield,	.	Sunday hunting,	.	Convicted,	1 00
Charles Wilson,	.	Pittsfield,	.	Sunday hunting,	.	Convicted,	1 00
John Boyle,	.	Pittsfield,	.	Sunday hunting,	.	Convicted,	1 00
Bert Godermote,	.	Clarksburg,	.	Sunday hunting,	.	Convicted,	5 00
Norman Springer,	.	East Charlemont,	.	Killing deer,	.	Discharged,	-
Fred Stoheker,	.	Buckland,	.	Short trout,	.	Convicted,	10 00
Harry Stoheker,	.	Buckland,	.	Short trout,	.	Convicted,	10 00
L. A. Hawkes,	.	Brooklyn, N. Y.,	.	Illegal fishing,	.	Convicted,	2 00
C. F. Reynolds,	.	Brooklyn, N. Y.,	.	Illegal fishing,	.	Convicted,	2 00
C. A. Castello,	.	Brooklyn, N. Y.,	.	Illegal fishing,	.	Convicted,	2 00

[I.]

LEGISLATION.

Acts of 1901.

[CHAPTER 102.]

AN ACT RELATIVE TO THE TAKING OR KILLING OF GRAY SQUIRRELS,
HARES AND RABBITS.

Be it enacted, etc., as follows :

SECTION 1. Section one of chapter ninety-seven of the acts of the year eighteen hundred and ninety-four is hereby amended by striking out in the third line, the words "fifteenth day of September", and inserting in place thereof the words : — first day of October, — and by adding at the end thereof the words : — *provided, however*, that any person, firm or corporation dealing in game or engaged in the cold storage business may buy, sell or have in possession, and any person may buy from such person, firm or corporation, and have in possession if so bought, Colorado jack rabbits, Nova Scotia white or eastern white rabbits at any season, if not taken or killed in this Commonwealth contrary to the provisions of this act, — so as to read as follows : — *Section 1.* Whoever takes or kills a gray squirrel, hare or rabbit, between the first day of March and the first day of October, or within said time buys, sells or offers for sale any of said animals, shall be punished by a fine of ten dollars : *provided, however*, that any person, firm or corporation dealing in game or engaged in the cold storage business may buy, sell or have in possession, and any person may buy from such person, firm or corporation, and have in possession if so bought, Colorado jack rabbits, Nova Scotia white or eastern white rabbits at any season, if not taken or killed in this Commonwealth contrary to the provisions of this act.

SECTION 2. This act shall take effect upon its passage. [*Approved March 5, 1901.*]

[CHAPTER 119.]

AN ACT TO PROVIDE FOR THE PROTECTION OF SHELLFISH IN THE
TOWN OF BERKLEY.

Be it enacted, etc., as follows :

SECTION 1. No person shall take any shellfish from their beds or wilfully obstruct the growth of any shellfish within the town of Berkley, except as is hereinafter provided.

SECTION 2. The selectmen of said town may give permits in writing to any person to take shellfish from their beds within said town, at such times, in such quantities and for such uses, as they shall deem expedient. Said selectmen may withhold all such permits for such time as they deem expedient. But any inhabitant of said town may without such permit take from the beds in said town shellfish for the use of his family, not exceeding in quantity one bushel, including shells, in any one day; and any fisherman may without such permit take shellfish from the said beds for bait for his own use, not exceeding in quantity one bushel, including shells, in any one day. Shovels shall not be used at any time below low water mark. Forks may be used by permit from the selectmen, but not otherwise.

SECTION 3. No little neck clams or quahaugs less than one and one half inches across the widest part shall be taken from their beds in said town.

SECTION 4. Whoever violates any provision of this act shall be punished by a fine of not less than ten nor more than one hundred dollars.

SECTION 5. District courts and trial justices shall have concurrent jurisdiction with the superior court of all offences under this act.

SECTION 6. So much of sections sixty-eight and sixty-nine of chapter ninety-one of the Public Statutes as conflicts herewith shall not apply to the town of Berkley. [*Approved March 6, 1901.*]

[CHAPTER 121.]

AN ACT TO PROVIDE FOR THE BETTER PROTECTION OF TROUT.

Be it enacted, etc., as follows:

SECTION 1. Whoever takes, catches or has in possession at any time trout less than six inches in length shall be fined ten dollars for every such trout taken, caught or held in possession: *provided*, that this act shall not apply to any person engaged in breeding or rearing trout, or to any one who on taking such trout immediately returns it alive to the water from which it was taken.

SECTION 2. This act shall not apply to the county of Berkshire. [*Approved March 7, 1901.*]

[CHAPTER 141.]

AN ACT RELATIVE TO THE SNARING OF PARTRIDGES, HARES AND RABBITS.

Be it enacted, etc., as follows:

Chapter three hundred of the acts of the year eighteen hundred and eighty-seven is hereby amended by striking out the word "January",

in the last line, and inserting in place thereof the word : — December, — so as to read as follows : — The provisions of section six of chapter two hundred and seventy-six of the acts of the year eighteen hundred and eighty-six, shall not apply to the trapping or snaring of ruffed grouse, commonly called partridge, hares or rabbits by an owner of land upon his land, or by a member of the family of such owner if authorized by such owner, between the first day of October and the first day of December. [*Approved March 12, 1901.*]

[CHAPTER 142.]

AN ACT TO INCLUDE THE MONTH OF AUGUST IN THE CLOSE SEASON
FOR TROUT FISHING IN THE COUNTY OF HAMPDEN.

Be it enacted, etc., as follows :

SECTION 1. Chapter one hundred and thirty-eight of the acts of the year eighteen hundred and ninety-one is hereby repealed.

SECTION 2. This act shall take effect upon its passage. [*Approved March 12, 1901.*]

[CHAPTER 158.]

AN ACT TO PROHIBIT FISHING IN LAKE QUINSIGAMOND AND ITS
TRIBUTARIES DURING CERTAIN MONTHS OF THE YEAR.

Be it enacted, etc., as follows :

SECTION 1. For a period of five years after the passage of this act no person shall fish in any manner whatsoever between the first day of September and the first day of April in each year in Lake Quinsigamond in the county of Worcester, or in its tributaries, above what is known as the Stringer dam, including Full Moon cove, Jordan pond and Newton pond commonly called Mud pond ; and between the first day of April and the first day of September in each year during said period no person shall take from said lake or its tributaries as aforesaid any fish in any manner except with a single hook and either a hand line or a line attached to a rod or pole held by hand, with bait, artificial fly or spoon.

SECTION 2. No person shall take any fish from said lake or its tributaries as aforesaid during said period of five years for the purpose of sale, trade or barter.

SECTION 3. Any person violating any provision of this act shall be punished by a fine of not less than twenty and not more than fifty dollars, or by imprisonment for not less than twenty nor more than fifty days, and shall be subject to a further penalty of one dollar for each fish taken or killed in violation of this act. [*Approved March 14, 1901.*]

[CHAPTER 163.]

AN ACT FOR THE BETTER PROTECTION OF THE FISHERIES IN THE WATERS OF PLEASANT BAY AND ITS TRIBUTARIES IN THE TOWN OF ORLEANS.

Be it enacted, etc., as follows :

SECTION 1. No purse or sweep seines, set nets or gill nets for the taking of fish shall be set, drawn, used or maintained in the waters of Pleasant bay or its tributaries in the town of Orleans ; but nothing herein contained shall be construed to forbid or make unlawful the maintaining of traps, pounds or weirs under licenses heretofore granted in accordance with section seventy of chapter ninety-one of the Public Statutes, until the expiration of the terms for which such licenses were granted.

SECTION 2. Any person who shall set, draw, use or maintain a purse or sweep seine, set net or gill net in violation of this act shall be punished by a fine of not less than one hundred nor more than five hundred dollars, or by imprisonment for a term not exceeding six months. [*Approved March 20, 1901.*]

[CHAPTER 174.]

AN ACT RELATIVE TO THE PROTECTION OF WILD FOWL.

Be it enacted, etc., as follows :

SECTION 1. Section one of chapter one hundred and eighty-four of the acts of the year eighteen hundred and ninety-seven is hereby amended by striking out the words “ any mechanical means ”, in the seventh line. and inserting in place thereof the words :—steam, naphtha, gasoline, electricity, compressed air or any other similar motive power,—so as to read as follows :—*Section 1.* Whoever within the limits of that portion of Boston harbor lying westerly and southwesterly of a line running from Deer Island to Point Allerton, including the waters of Dorchester bay, Quincy bay, Weymouth bay and Hingham bay, shoots at, kills or purses any wild fowl from or by the aid or use of any boat or floating device propelled by steam, naphtha, gasoline, electricity, compressed air or any other similar motive power shall be punishable by a fine of twenty dollars for each offence.

SECTION 2. All acts and parts of acts inconsistent herewith are hereby repealed.

SECTION 3. This act shall take effect upon its passage. [*Approved March 21, 1901.*]

[CHAPTER 178.]

AN ACT TO PROVIDE FOR THE FURTHER PROTECTION OF WILD
PIGEONS, GULLS AND TERN.

Be it enacted, etc., as follows :

Section two of chapter two hundred and seventy-six of the acts of the year eighteen hundred and eighty-six is hereby amended by striking out the words “between the first day of May and the first day of October”, in the fifth and sixth lines, and inserting in place thereof the words:—at any time,—and by adding at the end of said section the words:—*provided, however*, that this section shall not apply to the great American herring gull nor to the great black backed gull between the first day of November and the first day of May following,—so as to read as follows:—*Section 2.* Whoever takes or kills a plover, snipe, sandpiper, rail, or any of the so-called shore, marsh or beach birds, between the first day of May and the fifteenth day of July, or a wild or passenger pigeon, or a gull, or a tern, at any time, shall be punished by a fine of ten dollars for every bird so taken or killed: *provided, however*, that this section shall not apply to the great American herring gull nor to the great black backed gull between the first day of November and the first day of May following. [*Approved March 21, 1901.*]

[CHAPTER 184.]

AN ACT TO PROVIDE FOR THE PROTECTION OF FISH IN LEWIS BAY AND
ITS TRIBUTARIES.

Be it enacted, etc., as follows :

SECTION 1. No person shall draw, set, stretch or use any drag net, or purse or sweep seine of any kind for taking fish anywhere in the waters of Lewis bay and its tributaries in the county of Barnstable.

SECTION 2. Any net or seine used in violation of any provision of this act shall be forfeited; and it shall be lawful for any inhabitant or inhabitants of any town bordering on said bay to seize and detain, for a period not exceeding forty-eight hours, any net or seine found in use contrary to the provisions of this act, to the end that the same may be seized and libelled, if need be, by due process of law.

SECTION 3. Whoever violates any provision of this act or aids or assists in violating the same shall be punished by fine not exceeding two hundred dollars for each offence.

SECTION 4. District courts and trial justices shall have concurrent jurisdiction with the superior court of all offences and proceedings under the provisions of this act. [*Approved March 21, 1901.*]

[CHAPTER 193.]

AN ACT TO PROVIDE FOR THE BETTER PROTECTION OF EGG-BEARING
LOBSTERS.

Be it enacted, etc., as follows :

Section one of chapter one hundred and nine of the acts of the year eighteen hundred and eighty-nine is hereby amended by adding at the end thereof the words : — and *provided, also*, that exposure for sale, or possession otherwise than as provided for herein, shall be prima facie evidence of intent to sell, — so as to read as follows : — *Section 1.* Whoever during any season of the year catches or takes, and whoever has in his possession in this Commonwealth, with intent to sell, any female lobster bearing eggs, shall be punished for each offence by a fine of not less than ten nor more than one hundred dollars, or by imprisonment in the house of correction for not less than one nor more than three months : *provided, however*, that a person catching and taking any such lobster and immediately returning it alive to the waters from which it was taken, shall not be subject to such penalty ; and *provided, also*, that this act shall not apply to lobsters spawning in lobster cars, if they are immediately returned alive to the waters as aforesaid, and *provided, also*, that exposure for sale, or possession otherwise than as provided for herein, shall be prima facie evidence of intent to sell. [*Approved March 26, 1901.*]

[CHAPTER 225.]

AN ACT TO PROVIDE FOR THE PROTECTION OF GAME BIRDS AND
ANIMALS IN THE TOWN OF ESSEX.

Be it enacted, etc., as follows :

Section one of chapter two hundred and eighty-nine of the acts of the year eighteen hundred and ninety-nine is hereby amended by striking out the whole of said section and inserting in place thereof the following : — *Section 1.* Whoever takes or kills a rabbit, gray squirrel or chipmunk, or any kind of land bird, except beach or marsh birds, and except the English sparrow, within the limits of the town of Essex, at any time before the twentieth day of April in the year nineteen hundred and four, shall be punished by a fine of twenty dollars for every such rabbit, squirrel, chipmunk or bird so taken or killed. [*Approved April 2, 1901.*]

[CHAPTER 237.]

AN ACT RELATIVE TO THE TAKING OF SCALLOPS IN THE WATERS
ADJACENT TO NANTUCKET.

Be it enacted, etc., as follows :

SECTION 1. The provisions of section one of chapter two hundred and sixty-eight of the acts of the year eighteen hundred and ninety-six shall not apply to the taking of scallops for bait in the waters adjacent to the town of Nantucket from the first day of April to the fifteenth day of May, inclusive.

SECTION 2. This act shall take effect upon its passage. [*Approved April 2, 1901.*]

[CHAPTER 321.]

AN ACT RELATIVE TO THE PACKING, INSPECTION AND BRANDING OF
FISH.

Be it enacted, etc., as follows :

SECTION 1. Fish intended for sale or exportation, which are now subject to inspection under the provisions of chapter fifty-six of the Public Statutes and of acts in amendment thereof and in addition thereto, may hereafter be packed in any mode agreed upon by the buyer and seller, without inspection or branding, but such fish shall be inspected, if inspection be required, at the time of purchase by the purchaser, who shall in that event pay all expenses of inspecting and repacking.

SECTION 2. This act shall take effect upon its passage. [*Approved April 24, 1901.*]

[J.]

STATISTICS.

The following tables show in detail, by counties, the statistics of the shore net and lobster fisheries of Massachusetts, as reported to this commission. These tables embrace the fisheries with pound nets, weirs,* floating fish traps, fyke nets, seines, gill nets and pots, the latter being used for catching lobsters. They do not, however, include other branches of the shore fisheries, and to that extent fail to be completely comprehensive.

Table No. 1 shows the number of fishermen employed in the various sea-bordering counties in the fisheries designated. It will be seen that Barnstable County has almost half of the fishermen in the State in these special branches of fishery, while the counties of Plymouth, Essex and Dukes are next in importance, in the order named.

Table No. 2 shows, by counties, the number and value of boats, and the number and value of the different forms of apparatus. It will be seen that 830 boats, with a value of \$84,479.75, are employed in these fisheries; also 193 pound nets and trap nets, worth \$91,605; 1,976 gill nets, seines, etc., valued at \$18,893.50; 16,758 lobster pots, worth \$21,613.45; and shore property and accessory apparatus, with a value of \$13,270.90. The total investment for the State is \$229,862.60.

Table No. 3 shows by counties and by species, the quantities and values of the products. These amount to 14,164,249 pounds, with a value, at the prices paid the fishermen, of \$314,043.27. Barnstable County leads, with a yield of 7,235,732 pounds, worth \$129,321.28. No other county has half this amount of products. In preparing this table, the weight of lobsters was estimated; the actual number of lobsters was 592,179.

* In the Cape Cod region the pound net and similar contrivances for catching fish are called weirs, although the latter name is a misnomer when applied to pound nets.

TABLE NO. 1. — *Showing, by Counties, the Number of Men employed in the Shore Net and Lobster Fisheries of Massachusetts in 1901.*

COUNTIES.	Number.	COUNTIES.	Number.
Essex,	116	Nantucket,	25
Suffolk,	17	Dukes,	101
Norfolk,	14	Bristol,	83
Plymouth,	140		
Barnstable,	407	Total,	903

TABLE NO. 2. — *Showing, by Counties, the Apparatus employed in the Shore Net and Lobster Fisheries of Massachusetts in 1901.*

DESIGNATION.	ESSEX.		SUFFOLK.		NORFOLK.	
	Number.	Value.	Number.	Value.	Number.	Value.
Boats,	109	\$7,197 00	27	\$1,645 00	18	\$3,010 00
Pound nets and trap nets, . .	14	10,550 00	-	-	-	-
Seines, gill nets and fyke nets,	11	525 00	-	-	-	-
Pots,*	3,536	4,192 50	2,238	2,450 50	1,432	2,010 70
Shore property and accessory apparatus,	-	397 10	-	178 50	-	224 40
Totals,	-	\$22,861 60	-	\$4,274 00	-	\$5,245 10

DESIGNATION.	PLYMOUTH.		BARNSTABLE.		NANTUCKET.	
	Number.	Value.	Number.	Value.	Number.	Value.
Boats,	154	\$9,689 25	329	\$38,743 00	29	\$4,230 00
Pound nets and trap nets, . .	-	-	137	66,125 00	1	400 00
Seines, gill nets and fyke nets,	12	110 00	1,779	13,949 50	148	2,209 00
Pots,*	5,791	8,757 50	1,403	1,598 25	147	133 25
Shore property and accessory apparatus,	-	916 20	-	9,913 70	-	30 00
Totals,	-	\$19,472 95	-	\$130,329 45	-	\$7,002 25

DESIGNATION.	DUKES.		BRISTOL.		TOTALS.	
	Number.	Value.	Number.	Value.	Number.	Value.
Boats,	132	\$17,815 50	32	\$2,150 00	830	\$84,479 75
Pound nets and trap nets, . .	41	14,530 00	-	-	193	91,605 00
Seines, gill nets and fyke nets,	1	50 00	25	2,050 00	1,976	18,893 50
Pots,*	1,911	2,190 75	300	280 00	16,758	21,613 45
Shore property and accessory apparatus,	-	703 50	-	907 50	-	13,270 90
Totals,	-	\$35,289 75	-	\$5,387 50	-	\$229,862 60

* Only lobster pots are included in the classification of "pots."

TABLE NO. 3. — *Showing, by Counties and Species, the Yield of the Shore Net and Lobster Fisheries of Massachusetts in 1901.*

SPECIES.	ESSEX.		SUFFOLK.		NORFOLK.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives,	96,582	\$890 00	-	-	-	-
Bluefish,	10	50	-	-	-	-
Flounders and flatfish, . .	2,670	37 20	-	-	-	-
Mackerel,	195,621	10,059 86	-	-	-	-
Menhaden,	14,141	111 63	-	-	-	-
Pollock,	123,503	1,358 92	-	-	-	-
Salmon,	57	14 25	-	-	-	-
Scup,	465	14 25	-	-	-	-
Sea bass,	-	-	-	-	-	-
Sea herring,	1,380,971	13,157 97	-	-	-	-
Shad,	293	10 90	-	-	-	-
Squeteague,	491	18 75	-	-	-	-
Striped bass,	25	2 00	-	-	-	-
Squid,	2,100	22 00	-	-	-	-
Tautog,	1,466	28 50	-	-	-	-
Other edible or bait species,	351,777	4,104 48	-	-	-	-
Refuse fish,	-	-	-	-	-	-
Lobsters,*	218,480	22,935 57	105,478	\$10,646 22	81,014	\$7,640 06
Oil,	-	-	-	-	-	-
Totals,	2,388,602	\$52,766 78	105,478	\$10,646 22	81,014	\$7,640 06

SPECIES.	PLYMOUTH.		BARNSTABLE.		NANTUCKET.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives,	270,000	\$4,084 00	1,003,212	\$15,173 18	-	-
Bluefish,	-	-	78,947	6,441 98	104,045	\$7,962 02
Flounders and flatfish, . .	-	-	593,339	12,375 81	-	-
Mackerel,	1,126	99 98	741,074	32,013 01	160,376	4,882 16
Menhaden,	3,600	56 00	160,960	380 00	-	-
Pollock,	-	-	819,830	5,665 51	-	-
Salmon,	-	-	15	2 25	-	-
Scup,	-	-	101,511	1,346 07	1,892	76 46
Sea bass,	-	-	2,400	38 00	-	-
Sea herring,	-	-	1,479,341	14,242 04	-	-
Shad,	-	-	2,362	170 81	300	9 00
Squeteague,	-	-	995,800	18,591 32	3,289	116 15
Striped bass,	-	-	23,551	601 42	200	40 00
Squid,	-	-	902,472	7,883 34	644	19 62
Tautog,	-	-	50,042	1,491 96	-	-
Other edible or bait species,	-	-	236,651	6,405 81	16,020	640 80
Refuse fish,	-	-	800	12 00	-	-
Lobsters,	358,661	31,860 62	43,290	6,459 77	3,615	1,030 79
Oil,	-	-	135	22 00	-	-
Totals,	633,387	\$36,100 60	7,235,732	\$129,321 28	290,381	\$14,777 00

TABLE NO. 3. — *Yield of the Shore Net and Lobster Fisheries — Concluded.*

SPECIES.	DUKES.		BRISTOL.		TOTAL FOR STATE.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives,	60,715	\$565 74	422,516	\$4,801 90	1,852,975	\$25,514 82
Bluefish,	628	21 98	-	-	183,630	14,426 48
Flounders and flatfish, . .	70,076	1,311 30	-	-	666,085	13,724 31
Mackerel,	6,654	325 56	-	-	1,104,851	47,380 57
Menhaden,	2,250	19 00	500	15 00	181,451	581 63
Pollock,	148,900	316 00	-	-	1,092,233	7,340 43
Salmon,	-	-	-	-	72	16 50
Scup,	972,993	12,542 99	-	-	1,076,861	13,979 77
Sea bass,	68,300	2,150 73	-	-	70,700	2,188 73
Sea herring,	50	1 00	-	-	2,860,362	27,401 01
Shad,	378	19 25	21,672	1,296 40	25,005	1,506 36
Squeteague,	1,277,032	26,790 63	60	2 40	2,276,672	45,519 25
Striped bass,	1,675	85 15	-	-	25,451	728 57
Squid,	18,200	166 50	-	-	923,416	8,096 46
Tautog,	3,150	120 00	-	-	54,658	1,640 46
Other edible or bait species,	203,994	4,503 94	2,180	163 00	810,622	15,818 03
Refuse fish,	70,000	70 00	-	-	70,800	82 00
Lobsters,	71,207	6,799 50	6,525	703 36	*888,270	88,075 89
Oil,	-	-	-	-	135	22 00
Totals,	2,976,202	\$55,809 27	453,453	6,982 06	14,164,249	\$314,043 27

* The total number of lobsters taken, as reported to the commission, was 592,179,—a decrease of 10½ per cent. from the catch of the previous year, and a decrease of 24 per cent. in the catch per pot.

